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# THE PAPER TRADE JOURNAL.

"The Consumption of Paper is the Measure of a People's Culture."

VOLUME XXIII.—NO. 21. NEW YORK, MAY 26, 1894. WHOLE NUMBER 1047.

## Trade Topics.

### Pulverized Fuel.

[WRITTEN FOR THE PAPER TRADE JOURNAL.]

By W. H. Weston.

(Concluded.)

Some time ago the writer developed a scheme to use bituminous coal in the form of powder, and followed the thing out to a certain degree. All the details were not completely worked out, but the plans in a general way were completed. The idea was to bring the thing to as good a form as could be done, and then secure patents which would cover such of the arrangement as could be used to advantage; but finding some time after starting the thing that there were some experiments going on in Europe to the same end, the prospect of gaining anything out of the scheme was given up, at least for the present, or at least until it could be put forward without private expense. If such a thing has ever been tried in the United States it evidently has been done in isolated instances where the plan was not developed to any marked degree, or brought into prominence. It is quite likely that the idea has been evolved in a number of places before this, for it is simple and very likely to suggest itself to a great many.

The grinding up of the coal, or its reduction to a pulverized condition, would be an easy matter and could be done at a power house or at the mines. Probably at the latter place would be most practical when the use of soft coal in this way becomes general, as it very evidently will in a few years.

The cost of grinding the coal would be a small matter, as it is very soft and much of it is in a fine state to begin with. This reduction of the coal might cost 10 cents per ton, probably not more than this and possibly less, and if done at the mines it might not cost over 5 cents per ton. In some instances at certain mines it might not increase the cost of the coal at all.

The details of the arrangement as the writer planned them were as follows: There was to be a supply of the pulverized coal in such a position near the furnaces and elevated somewhat above them that the fuel could be delivered through a pipe by gravity to the front of a furnace. Here it was to be taken by a current of air into another pipe leading to branches which would deliver it inside of the fire box. The quantity of the fuel delivered was to be regulated by valves to change the air supply and also that of the fuel through the feed pipe. The supply of air for this part of the arrangement was to be from a blower located near the furnaces and under easy control. The equipment could be connected to any form of furnace very readily and at small cost. All brickwork, flues and combustion chambers were to remain as built for common use. The pipes which were to deliver the fuel were to enter the front end of the fire box, just above the level of the grate, and to be protected by being surrounded with fire brick. This brickwork was to extend a small distance on each side if necessary, thus forming a chance for a small area of from 2 to 4 square feet for the starting of a small coal fire if found necessary; but this would not probably be needed after the furnace was in complete operation. The full delivery openings were to be so inclined and set slightly radiating as to command the whole area of the furnace. The regular grate bars were to be replaced by castings giving smaller openings and more of them, so divided as to form a fine network. Portions of this grate surface were to be covered by fire brick so as to reduce its area. Then an air blast was to be introduced below this grating from the blower, the pressure and volume to be under proper control by a valve. The grating was to have its openings so made as to incline the air jets slightly toward the combustion chamber. Next, if it was found necessary, similar air jets were to be introduced at the sides of the furnace, so as to make a more complete mixing of the gases.

With such a method of using pulverized fuel it was thought that the combustion would be complete and perfect. The entire combustible matter of the coal would be utilized and the highest economy would be secured. The fuel being so broken up, and the particles coming in contact with the air in the way described, a high temperature would be always maintained, and the gases and air would be at a temperature which would enable them to combine readily and completely, thus giving entire combustion to every particle of the fuel. There would be no opening of furnace doors with the resulting disadvantage of the inrush of cold air, and no loss by putting cold fuel on the fire every few minutes. The serious loss of heat units going off up the chimney by an excessive amount of air in the draught, which is always found in common methods in order to secure fair combustion, would also be avoided to a great degree, for by this method the much more complete and thorough mixing of the air and gases would render the volume of air required much less.

With an arrangement like that described it seems probable that the loss in using fuel under steam boilers might be reduced from 40 or 50 per cent. to a very much lower figure. It should under favorable conditions be reduced to 20 per cent. The arrangement is simple throughout, very easily put in and easily operated. There is nothing delicate or complicated about it to get out of order, and the repairs would doubtless be at a minimum. The cost of handling the thing in operation would be much less than the usual methods. The development of such a scheme may bring it into general use.

### Secret Titles to Goods.

[WRITTEN FOR THE PAPER TRADE JOURNAL.]

The ease with which goods and almost all other species of personal property can be passed from hand to hand has given rise to special rules and presumptions with regard to the ownership and sale of the property. Possession has been treated in many instances, as even more than the proverbial "nine points" in favor of the possessor.

Possession is not, however, conclusive evidence of title to, or the right to sell goods or chattels. It gives no right to stolen property, for example, although the same may be subsequently purchased for full value by an innocent party. Neither does it furnish a defense to third persons acting on the strength of it and the possessor's representations, in many cases where it is obtained honestly, but conditionally. Thus, one person may give to another, perhaps a dealer, an article to show and receive bids on, but especially withholding authority to sell, and a purchaser from the latter will get no title.

Probably the most familiar cases of secret titles, the validity of which should be considered, are those growing out of conditional sales, where possession is given, but the title is retained in the vendor. All sorts of articles, and particularly things of considerable worth are so sold. Notable examples are found in farm and other machinery, musical instruments, furniture, office supplies, such as typewriters, &c.

Still there is another and even more important class of cases, involving as they do large amounts, and many more kinds of goods and varieties of personal property, covering everything from dry goods and notions, groceries, drugs, paints and oils, boots and shoes to coal and live stock, and that is conditional sales to merchants with power of resale.

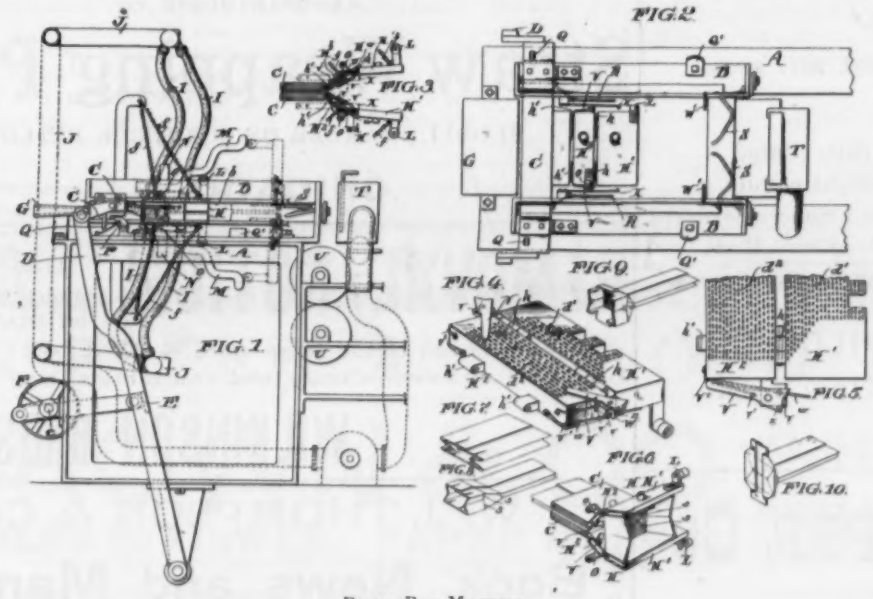
The most recent adjudication on the subject is by the Supreme Court of Utah in the case of Hirsch *v.* Steele, decided March 23, 1894, (36 Pacific Reporter 49). This court says that the doctrine that conditional sales of specific chattels, sold to be held and used by the vendee, are valid, has been long established in England, and, in the absence of statutes to the contrary, generally prevails in all the States of the Union, except Illinois, Kentucky, Virginia, and perhaps one or two others. It is fully settled in Utah. The Supreme Court of the United States has given the great weight of its authority to this doctrine.

In the case mentioned, which was a sale of goods to be taken care of by the purchaser and resold by him, but stipulated to remain the property of the seller until paid for, it was, however, contended that the rule should not be applied, but that a distinction should be made where, as in this case, goods are sold to a person for resale by him. The court apparently has strong sympathy with this view. To show where it stands, it quotes what the Supreme Court of Arizona said when confronted with the same question, that the argument appealed strongly to its sense of justice, and it should hold with it, and thus uproot in its jurisdiction what it considered a pernicious system of secret titles, concealed in the pockets of the owner and calculated to entrap the unwary, were it not impelled by an overwhelming weight of authority to the contrary. The States of New York and Indiana it is said alone make the distinction insisted upon. Kansas occupies a doubtful position on the question. Among the cases cited as directly in point, holding that a conditional sale of goods to be resold by the purchaser, but retaining the title in the vendor, is valid as against the purchaser's attaching creditors, is one decided in Connecticut, which was a conditional sale of liquors to a retail merchant; a Michigan case of the same kind; a Vermont case; a Maine case, and a Massachusetts case where groceries were sold conditionally to a retail merchant for resale.

### Paper Bag Machine.

The machine herewith illustrated is designed for folding the ends of a paper tube into the proper folds for making the bottoms of paper bags, and is especially concerned with forming the bottom which is commonly known as a satchel square bottom from a bellows side fold tube.

The paper bellows side fold tube is carried between reciprocating sectional suction formers, which during their reciprocations are caused to move apart or open up, carrying the paper which adheres to their perforated suction faces with them, and thus opening out the end of the bag and breaking down or forming the paper into the proper folds for the satchel square bottom. The square box shaped bottom thus formed is flattened down, and the formed tube passes to the pasting devices where the flaps are pasted in the usual manner. As the suction formers are moved apart during their reciprocation through the machine, the sectional portions are moved with reference to one another so as to assume different angular positions. This action opens the end of the tube and forms the diamond folds in the sides, which result from the box shape imparted to the end of the tube. The perfection of the shaping of the square box shape depends largely upon the accuracy with which the sides of the tube are broken into the diamond folds; and the suction of the moving formers in forming these diamond folds is assisted by means of positively acting mechanical folders.



PAPER BAG MACHINE.

Figure 1 is a side elevation of the machine; Fig. 2 is a plan view; Fig. 3 is a detail view of the sectional suction formers and their carriers; Fig. 4 is a perspective view of one of the suction formers; Fig. 5 is an enlarged plan view of a portion of the same; Fig. 6 is a perspective view of the suction formers in the act of forming the square bottom illustrating the operation of the device for forming the diamond side folds; Figs. 7, 8, 9 and 10 are perspective views of the bellows side fold paper tube, illustrating successive steps in the formation of the satchel square bottom.

A is the frame of the machine; B are guide frames upon the top of the frame A provided with suitable guideways, *b*.

C, C are two transversely arranged sliding carriers movable in the guideways *b* and located one above the other. These carriers are separated slightly from one another to admit the paper tube sections between them, and are held together in their reciprocations. The carriers C, C are reciprocated back and forth in the guides *b* by levers D connected by a crossbar, E, and driven from a shaft, *e*, by the pulley F.

G is a feeding chute or guide in the front of the machine, through which the tube sections are fed between the carriers C, C.

H, H are the suction formers carried by the carriers C, C and reciprocated with them. These suction formers each consist of two hollow box shaped sections H', H² hinged together as at *h* and provided with perforated faces *d'*, *d²*. The sections H² are hinged as at *h'* to the carriers C, C.

I, I are flexible tubes connecting each of the sections of the formers H, H with a suction flue J, in which suction is created by a fan or other suction creating device. During the reciprocation of the formers H, H the sections H', H' and H², H² are caused to move apart or open, and the paper of the tube section which is held against their perforated faces by the suction from the flue J is bent into the proper folds. The sections H' and H² of the formers are caused to move apart or open up by stationary cam arms M, M and N, N carried by the frame and located above and below the guideways *b*, against which fingers L, L and O, O, carried by the sections H', H' and H², H², respectively, are guided and retained in contact by springs *f*. When the carriers C, C and their formers H, H are in a position to receive the tube sections from the guide G, the adjacent faces of the carriers C, C are brought together to clamp the body of the tube section, with the end which is to be formed projecting between the formers H, H. This clamping of the carriers C, C together may be accomplished by pivoted spring fingers P, located on each side of the machine near the front thereof, and adapted to act upon the lower face of the under carrier C and raise it. When the lower carrier C is raised by the fingers P it is locked to the upper carrier by pawls Q carried by the upper carrier and engaging with the lower one.

Q', Q' are cams upon each side of the frame B near the rear thereof, so located that when the carriers, C, C have reached substantially the limit of their forward reciprocation and the formers have folded the end of the tube section they will act upon the pawls Q, Q to move them out of engagement with the lower carrier C, and thus permit that carrier to drop and release the tube section, which is then stripped off and carried to the pasting devices.

R, R are hinged folding wings carried by one of the carriers C and located on each side adjacent to the formers H, H.

S, S are springs carried by the frames B, B adjacent to the rear thereof and projecting from each side into the space between the frames, adapted to act upon the hinged wings R, R and close them down upon the opened formers to complete the folding of the bottom.

T is a blower located at the rear end of the machine, adapted to blow a blast of air into the opened end of the tube section and thus aid the formers in breaking it into the square box shape.

U, U are the stripping rollers by which the folded tube sections are carried off to the pasting devices. The sections may be guided or fed to the rollers U, U in any convenient manner. The tube sections are fed in succession through the chute or guide G in any convenient manner. A tube section thus fed passes between the carriers C, C and formers H H. Where the tube section is introduced between the carriers C, C the lower carrier is lifted by the fingers P and locked by the pawls Q, clamping the body of the tube between the carriers C, C, with the end which is to be folded lying between the formers H H. As the carriers and formers are moved forward the sections are moved apart by the action of the fingers L, L and O, O upon the cam arms M, M, N, N. The two sections H' H² of one former are first caused to separate from the two sections H' H² of the second former, drawing the two faces of the paper with them and partially opening the end of the paper tube. As the reciprocation

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of the formers continues the sections H′ and H² of each former are caused under the action of the cam arms M and N to assume an angular position with reference to one another, the sections H′ assuming horizontal positions and the formers H² gradually taking vertical positions. In Fig. 6 the sections are shown as they are assuming these positions. This action of the former section causes the end of the tube to assume the open square box shape and at the same time forms the diamond shape side folds 3, 3. As the formers continue to reciprocate the sections H′, H′ are caused to assume a vertical position, drawing out the faces of the tube, and the wings R, R then fold down upon it, flattening it into the final position shown in Fig. 10. Figs. 7 to 10 show successive steps in the formation of the bottom. Fig. 9 shows the end of the tube in the square box shape.

V, V are two pivoted folding fingers carried by each former adjacent to the hinged point between the sections H′ and H², preferably on a stud or projection *v* carried by the sections H² on each side, and movable across the face of the sections H².

V′ are springs carried by the sections H² and acting on the fingers V, as upon pins *v*′ carried thereby, to normally hold the ends of fingers out so as not to extend over the faces of the sections H², as is shown in Fig. 5.

W are spring pins carried by the studs or projections *v* and located so as to act upon the rear ends of the fingers V. These pins are normally held out of action by the rear portions of the fingers V which extend over the pins when the fingers are in their inactive positions, as shown in Fig. 5. When, however, the fingers are moved upon their pivots so as to throw their front ends over the faces of the sections H², the rear ends are moved out from over the pins, which are projected by their springs *w* and thus act to lock the fingers against returning to former inactive positions under the action of the springs V′.

Located in the rear of the frame of the machine are projections W′ which are adapted, when the formers reach that portion of the guides, to strike the free extended ends of the springs *w* and depress them, retracting the pins W and unlocking the fingers V and permitting them to be moved back into position under the action of the springs V′.

X are hooks or fingers carried by the sides of the stationary frame adapted to catch the rear ends of the fingers V, as they are moved with the formers and to throw them in over the face of the sections H², as is shown in Fig. 4. The fingers V may be provided with pins *x* to engage the hooks or fingers X. These fingers or hooks X are so located that they will act upon the fingers V when the formers reach that position in their reciprocations that they are in the act of forming the square box shape on the end of the tube. At this moment they engage the free ends of the fingers and move them inwardly over the paper into the diamond side fold, as is shown in Fig. 6. This inward movement of the fingers into the open sides of the tube assists the formers in properly shaping the angular creases which compose the diamond side folds and prevents rumpling of the paper or the formation of improperly shaped creases. The instant that the fingers V, V are so operated the pins W are released and lock the fingers against moving back until the square box shape is fully imparted to the end of the paper tube, when the projections W′ act upon the springs *w* and retract the pins W, permitting the springs V′ to move the fingers V back out of the diamond side folds, so that the paper may be finally flattened out by the opening of the sections H′, H′, and the folding down of the wings or folders R, R.

## Smoke Absorption.

A system of smoke absorption, invented by Colonel Dulier, has been applied at the City Saw Mills, Glasgow, and careful data taken by Mr. R. R. Tatlock, public analyst of that city. The boiler in use is a Babcock and Wilcox water tube steam generator, working a 220 horse-power engine, and consuming daily about three tons of coal and half a ton of wood scraps and chips. Before entering the usual chimney, the gases ascend a short brick flue, and then descend a flue of steel plates dipped at a high temperature in a tar composition, entering the ordinary stack at the bottom. At the bottom of the ascending flue is a jet of steam at boiler temperature, while at the top of the ascending flue is a fine spray of water. The carbon is thus separated, and with the water drops into a pump at the foot of the descending flue, being thence carried off in pipes.

## Story of the Floods.

Not since June, 1889, has there been a rainfall on the Eastern water shed so protracted and so productive of damage as that which has visited a large area of territory during the past week. Fortunately the loss of life has not been so great as it was five years ago, and the story of disaster in which the city of Johnstown, Pa., was the centre has not to be repeated.

When the extent of the storm became known, and it was ascertained that localities in which paper mills are situated were affected thereby, THE PAPER TRADE JOURNAL communicated by letter and telegraph with a number of manufacturers whose mills were most likely to feel the results of the storm.

In response to these inquiries the replies appended were made. From these and other sources THE PAPER TRADE JOURNAL is enabled to give its readers a fair idea of how the paper mills have been affected by the excess of water.

The greatest damage so far reported seems to have been experienced at Lock Haven, Pa., where the flood played havoc with the property of the New York and Pennsylvania Company. The river at Lock Haven rose 32 feet, and at one time there were 6 feet of water in the machine rooms and 10 feet in the Yaryan house. In the mill yards there were stored about 6,000 cords of wood. With the exception of about seventy-five cords this was all swept away, going down the river, between 4,000 and 5,000 cords jamming at a railroad bridge. Help was at once summoned and a log boom was put out below the bridge, and it is expected that the greater part of the wood now in the jam will be saved. Considerable of the wood went on down the river, and men were sent down as far as Williamsport in an endeavor to recover it.

The gale began on Sunday night, May 20, and the wind wrecked the lime house, which was destroyed by fire as was also the roof of the boiler house. The walls of the mill were damaged very slightly. The paper machines were only slightly injured, and no damage was done to the alkali room, digester room, steam boilers or rotaries. In the Yaryan building the black carbonate bleaching tanks were tipped up on their sides. The mill yard is covered with 4 inches of mud, a plentiful supply of which is also all over the mill. With the energy, characteristic of the company a great augmented force was put to work clearing up, and on Thursday the paper machines were ready to run, the Corliss engines having being started on the morning of that day. It was at first feared that a great deal of finished paper had been damaged, but further investigation happily disclosed the fact that the damage in this direction was not as great as was feared. The mill will be in complete running order in all departments in a day or two. If the wood now in the jam at the bridge is saved, as it likely will be, the loss to the company will not exceed $25,000 to $30,000.

NO DAMAGE.

TYRONE, Pa., May 24, 1894.

We have your favor of 23rd inst., asking us if our mill was injured any by high waters, and we wired you in reply as follows: "The flood did not injure or damage us any." The water was very high here Saturday night, but it was several feet too low to do us any damage.

MORRISON & CASS PAPER COMPANY,
J. G. Anderson, Treas.

SAFE.

ROARING SPRINGS, Pa., May 24, 1894.

Our mill sustained no damage from the late flood. D. M. BARE & Co.

SHUT DOWN—NO INJURY.

HAGERSTOWN, Md., May 22, 1894.

The water has done no damage except to muddy the springs from which we get wash water, but it soon subsided and we only lost a few hours' run.

The Potomac River, 6 miles from here, at Williamsport, Md., rose 20 feet, but caused no damage.

Eyster & Son, Halltown, are down for want of coal.

The Woodbine Paper Company at Morgans, Md., had a lot of straw damaged by water and had to move 700 tons of straw. The Baltimore and Ohio Railroad at this point had considerable track washed away. The Woodbine Mill is shut down on account of high water and lack of coal.

ANTIETAM PAPER COMPANY,
B. F. Bond.

NOT AFFECTED.

NEW YORK, May 24, 1894.

The floods have not affected our mills at all. In fact, we believe that there was no high water to speak of. In regard to other mills, would say that we know nothing about them, except what we have seen in the daily papers.

WEST VIRGINIA PAPER COMPANY.

THREATENED, BUT ALL RIGHT.

HARPER'S FERRY, May 23, 1894.

While both rivers were very high and threatening, neither the Harper's Ferry Paper Company nor the Shenandoah Pulp Company sustained any damage, and will be running again in a few days.

HARPER'S FERRY PAPER COMPANY,
G. R. Bready, Manager.

DAM WASHED OUT—SHUT DOWN,

ELKTON, Md., May 22, 1894.

Numerous small bridges have been carried away by the high water. Navigation on the Delaware and Chesapeake Canal has been brought to a standstill on account of the necessity of opening the large gates at the locks to allow the immense volume of water to escape and prevent the overflowing or breaking of the banks, which would have proved very disastrous to life and property in the immediate vicinity. The flood gates were totally inadequate for the purpose, while grave fears were entertained for the safety of the lives and property in the lowlands bordering the canal. It is now thought that all danger is passed. The freshet in the Big and Little Elk Creeks was without parallel, and resulted in the washing out of the large dam on the former, at Harlan & Brothers Mill, compelling the shutting down of the works until it is rebuilt. The pulp mill of the Singerly Pulp and Paper Company at this place was also compelled to shut down on account of muddy water.

X.

CELLARS FULL OF MUD.

CONOWINGO, Md., May 23, 1894.

We have again been subjected to a great flood, but so far as I can tell we have not been damaged, with the exception of filling our cellars with mud. The waters are not as high as in 1889 by 18 inches.

SUSQUEHANNA WATER POWER AND PAPER CO.,
J. C. Smith, Treasurer.

POWER SHORTENED.

LAMBERTVILLE, N. J., May 23, 1894.

I have received no damage from flood or storm; neither has any other mill in this section that I hear of. Some have had their power shortened by back water, and

THE GLEN MFG. CO., OFFICE: 244 WASHINGTON STREET, BOSTON, THE HAVERHILL PAPER CO.
NEWS PAPER AND WOOD PULP.

CHAS. D. BROWN & CO. 154, 156 & 158 Congress St., BOSTON, MASS.
FOREIGN AND DOMESTIC PULPS AND FIBRES. PAPER MAKERS' CHEMICALS AND MILL SUPPLIES.

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O. A. MILLER, Pres. and Treas.
J. H. FRIEND, Vice-Pres.
K. D. WOOD, Secretary.

J. L. & D. S. RIKER, 45 CEDAR STREET, NEW YORK.
Importers and Manufacturers' Agents.
SOLE AGENTS FOR THE UNITED STATES AND CANADA ALL TESTS Soda Ash and Alkali.
OF THE UNITED ALKALI CO., Ltd., of Great Britain, BLEACHING POWDER.
FOR THE SALE OF THEIR VARIOUS BRANDS OF

PERKINS, GOODWIN & CO.,
Nos. 66 and 68 DUANE STREET, NEW YORK,
Have on hand and to arrive all grades of Bleached and Unbleached
SULPHITE AND SODA PULPS. SEND FOR SAMPLES AND PRICES.

the river is very muddy. There was only, however, about a 9 foot rise here.

WILLIAM GANDEY.

NOT ABLE TO RUN.

LAMBERTVILLE, N. J., May 23, 1894.

We are happy to say that the high water has done no damage either to our mill or any others in this vicinity. We have all been inconvenienced somewhat on account of the high as well as muddy water, and have not been able to run this week.

THE LAMBERTVILLE PAPER COMPANY,
Pierson.

SLIGHT REPAIRS.

CAMDEN, N. J., May 23, 1894.

We are glad to state we did not suffer any damage from the high tide of the Delaware. The damage was slight and the repairs will be only those resulting from any heavy rain.

VICTOR PAPER MILLS AND BAG COMPANY,

THE CIRCUS CAUGHT IT.

WILKESBARRE, Pa., May 23, 1894.

Barnum & Bailey's circus aggregation has suffered about all the damage which has been done hereabouts by the annual spring raise of the Susquehanna. We are not harmed in the least, nor is any other Wilkesbarre property so far as we know. Business is rather brisk up this way now, and paper goes as fast as we can make it.

WILKESBARRE PAPER MANUFACTURING CO.
John G. Wood.

NO TROUBLE.

PITTSTON, Pa., May 22, 1894.

Our river is pretty well swollen, but have seen it much higher. It rose quite a good deal last night. Have had no trouble at mill as yet, and do not anticipate any.

G. B. ROMMEL.

DAM WASHED OUT.

LAMBERTVILLE, N. J., May 23, 1894.

The storm did no material damage in this neighborhood; but the Lehigh dam at Easton, Pa., was washed out, which will necessitate the closing of the canal to repair the same, thereby closing the paper mill at Raubsville owned by A. Segal, of Philadelphia. O'BRIEN BROTHERS & CO.

LOSSES AT MANAYUNK.

The Schuylkill at Manayunk again swelled rapidly on Tuesday, and at 9:30 A. M. it stood at 25 feet 4 inches, the highest point during the flood, and exceeding the previous day's record by 10 inches. In Rudolph's paper mill, at West Manayunk, tons of wood pulp stored in the cellar were hopelessly ruined by the water. At Nixon's Flat Rock Paper Mills several hundred cords of valuable poplar wood were washed away, and the American Wood Paper Company's works also lost quantities of stock. With the rise of the water the feed gates at the Flat Rock Canal lock were washed away, and the waters rushed over the top of the guard wall. The trestle of Pencoyd extension of the Pennsylvania Railroad was undermined and greatly weakened.

A later report is as follows:

It was very difficult to ascertain anywhere near the accurate amount of damage inflicted, as mill owners did not know the condition of their plants. It was agreed that the high flood of Tuesday morning and the night before did double the amount of damage done on Monday, when the loss was estimated at $100,000. Not a single mill on either bank of the river escaped. In most of them the water found access through the second floors, and those having one story additions were flooded completely. The loss to the American Wood Paper Company was much greater than at first believed. The machinery was not only damaged, but the sheds were lifted from their fastenings and hurled down the stream. The plants where the loss was considered slight are filled with mud and refuse, and machinery and gearing are ruined. These include Nixon's paper mills, Gallagher & Esterheld's cloth mills, the Areola Mills, the Eagle Mills, the paper mill of Campbell & Brother, Ellis & Co.'s mills, the Picton Mills and Pierce & Co.'s mills. At West Manayunk one of the greatest sufferers was the Ashland Paper Mill. The building, although standing back a considerable distance from the river bank, was flooded and much stock and valuable machinery ruined.

WET AND DIRTY.

PHILADELPHIA, Pa., May 23, 1894.

The water submerged the lower part of our mill, but other than shutting us down and damaging our belts and pulleys with dirt and water caused us no very serious loss.

CHAS. MCDOWELL,
Gen. Mgr.

UNDER WATER.

MANAYUNK, Pa., May 25, 1894.

The Schuylkill River was 25 feet above low water mark. Our cellar was entirely under water, our boiler house had 6 feet of water in it, our Corliss engine of 300 horse power was entirely covered, our large machine room had 4 feet of water in covering half of our machine. Outside of the loss of time and clearing machinery we lost about 150 tons of coal. Having warning in time we removed all paper. We should say that $700 will cover our loss.

MANAYUNK PAPER COMPANY,
Robt. P. Stelwagon.

TRIFLING DAMAGE.

PHILADELPHIA, May 23, 1894.

The flood in the Susquehanna River at our mill is about 12 inches more than the big flood of June 1, 1889. At this writing the river is still too high to tell whether any damage has been done to the race, but if there is any damage it will be trifling. The basement of the mill was flooded, but everything which could have been damaged was removed or protected, so that it was impossible for any loss to occur.

YORK HAVEN PAPER COMPANY.
Henry W. Stokes, Manager.

DAM INJURED.

LIGHT STREET, Pa., May 23, 1894.

We have had a big rain and wind storm and high water. Some damage to our drain, but how much we cannot tell yet; may be a few hundred dollars. There has been a terrible flood in the west branch of the Susquehanna River. Lock Haven and Williamsport have suffered considerable loss, so reported. We have no papers from there, so we cannot tell the extent of damage.

BLOOMSBURG PAPER COMPANY.
J. M. Shew.

PLENTY OF MUD.

HUNTINGDON, Pa., May 22, 1894.

We had an 18 foot rise in the river, which was 6 feet higher than our basement; but with gates and coffer dams and our big fire pump we kept out most of the water. We worked all night Saturday and Sunday moving to higher floors. It is the greatest flood, save one, we have ever had in the Juniata Valley. Plenty of mud.

J. C. BLAIR.

NOTES.

At the mill of the Susquehanna Water Power and Paper Company, Conowingo, Md., the river rose 21 feet, causing a shut down.

At Catawissa, Pa., the water was so high that it was expected that the dam of the Catawissa Fibre Company would be carried away. The water, however, began to go down before any great damage was done.

The Flat Rock Mill of the Martin & William H. Nixon Paper Company at Manayunk, Pa., was inundated, there being 2 feet of water in the office, while cellars, &c., were filled. It was necessary to shut down the mill, but it will be started up next Wednesday.

At Bridgeport, Pa., Hugh McInnes reports that at his mill "everything is afloat and all upset."

# Correspondence.

## Miami Valley.

[FROM OUR REGULAR CORRESPONDENT.]

DAYTON, Ohio, May 24, 1894.

It is a grievous mistake to think that there is no business at all in this community, as some maintain, while it is equally ridiculous to consider that the mare is trotting at the same old clip despite her spavin-jointed crippleness.

Occasionally you find an extremist whose prophecies of business are rabid and extravagant. He would make you believe the earth is flat if this supernatural power was within his grasp. It is usually noticeable that this class of business men do more senseless "kicking" than actual hustling; hence their continual dissatisfaction.

The commercial world has been provoked at the backward tendency of business, yet it can truthfully be said that only a few chronic kickers exist in this valley, and a spirit of unanimity in an effort to regain what is lost prevails. The substantiality of the trade has been a material factor in drifting Miami Valleyites safely over the chasm of depression.

The Laidlaw-Dunn-Gordon Company, as previously stated in these columns, will erect new factories near Cincinnati. Twelve acres of land, located between the old Buckeye racetrack and Elmwood, have been purchased for the purpose. The main building will be 660x130 feet and will be constructed of brick with a slate roof. The south end will be three stories in height, containing a water and clock tower. In all, the new plant will be extensive, with all of the modern equipments of the times. The C. H. & D. Railroad is laying tracks to the site of the new buildings, and as soon as the structures are completed the machinery and supplies of the Laidlaw & Dunn Company and of the Gordon Company, of Hamilton, will be shipped there. Besides the main structure it is intended to erect four other buildings, ranging in dimensions from 400x250 feet to 40x65 feet. The cost of the plant will be $300,000. Hamilton greatly regrets the removal of the Gordon Company.

Precedent to all other public matters of importance comes the legislative discussion of the canal question. Judging from the deliberations of the Buckeye State's august body, the question of abandonment or retention of the Miami and Erie Canal is weighty, and deserving of minute investigation.

The other day the House Committee on Railways and Canals began the consideration of the bill of Mr. Dalzell (Republican, Pennsylvania), appropriating $10,000 for a preliminary survey for a ship canal to connect the waters of Lake Erie and the Ohio River. The bill was reported favorably to the full committee having charge of it. Members of the committee, however, differed as to the best route for the canal and after some discussion the matter was postponed. It is obvious that a national interest is also evidenced.

It seems that it is the general expression that it would be folly to change the route of the canal. The present one is most advantageous, covering the best part of the great State of Ohio and touching nearly all of the larger cities, thus affording a means of navigation between important ports. Another reason, and a very cogent one in this connection, is that the expense would be wonderfully lessened to convert the present Miami and Erie Canal into a ship canal. Complete reconstruction is a question of a different hue, and one which will never be acted upon, it may be safely stated. The cost of making this change will be considerable, but the revenue to be derived from the improvement will also be significant.

The Ohio Legislature has been grappling with canal questions with a great effort recently. Some time ago Senator Earnhart introduced a bill providing for the abandonment of the Hocking Canal in order to lease it to the Columbus, Hocking Valley and Athens Railroad Company. This lease was to be for ninety-nine years, renewable forever, in consideration of the payment by the company into the State treasury on July 1, 1894, of the sum of $30,000, and on January 1, 1900, and each succeeding year thereafter during the term of the lease the sum of $6,000 annual rental. The Hocking Canal is only 42 miles long, and while its abandonment may have an influence in the action of the disposition of the Miami and Erie Canal it will result to very little loss, it is understood, to paper manufacturers. Mr. Earnhart states that he will vote to uphold the canals, but claims that this is no branch of the canal system of Ohio. He introduced the bill for the benefit of the State, appreciating the immense value of the coal fields which would subsequently be opened up on what is now practically idle territory.

Paper makers all along the line will run a grand outing when the new ship canal is opened for navigation.

The destruction of the old Haldeman Paper Mill in the southern part of the valley last week marks a sudden check in the active industry at Lockland. These mills were rather famous, having been built before the war and during a time when the advanced methods of paper making were comparatively unknown. This fire was characterized for the intense amount of excitement which attended it. The fire spread to the stacks of hay surrounding the plant, licking them up in a jiffy, and at the same time attacking the iron boiler and engine room, some distance up the canal. Although constructed entirely of corrugated iron this building was burned to the ground, parts of the heavy iron being thrown high into the air by the intense heat. While the great mass was thus trembling in the terrible turmoil great vats of chemicals burst, casting their odor broadcast, the excitement being further augmented by the explosion of one of the boilers.

The plucky engineer remained at his post of duty until driven from the premises by the falling timbers. The constant din of the whistle brought fire detachments from four different suburbs, besides Lockland, and a merry fight of the flames proved the result. It was found necessary to run a line of hose over 1,000 feet to the nearest Hartwell plug.

The Dayton Typothetæ held a called meeting the other evening at the Hotel Cooper. President L. D. Reynolds presided, and matters of interest were reported and discussed. A handsome supper was served, making a pleasant termination of the business session.

Congressman P. J. Sorg is now in Washington and has already entered on the duties of his office. His escort consisted of gentlemen interested in the paper and allied trades. Mr. Sorg selected as his secretary James M. Cox, a well-known young Cincinnati newspaper man.

"Benny" F. Reist, of the Morrison-Cass Company, stopped in the city the other day, while en route to Chicago, long enough to be tackled by a reporter, who interviewed him on the coal situation in Pennsylvania. Unless matters brighten the Morrison-Cass mill at Tyrone may suffer from the coal famine. This recalls that the Mead Paper Company's mills shut down this week owing to the scarcity of fuel. The difficulty may extend to serious proportions in this city and valley.

Charles Dobilinski, of the Pennsylvania Salt Manufacturing Company, of Philadelphia, paid this valley a flying trip during the past week.

W. E. Crume, of the Crume & Sefton Company; Captain Wood, of the Dayton Globe Iron Works, and George G. Shaw, of the Dayton Paper Novelty Company, members of the Dayton Pelee Fishing Club, which received such national notoriety in Canadian waters recently, have returned home brim full of stories upon life on a British man-of-war. M. V.

## Fox River Valley.

[FROM OUR REGULAR CORRESPONDENT.]

APPLETON, Wis., May 22, 1894.

It has now been just about a week since the sun has been visible and no signs are at present discernible that he is to show


# HOLLINGSWORTH & WHITNEY CO.,

MANUFACTURERS OF ALL GRADES OF

# Manilla Wrapping Papers, Pure Fibres and Wood Pulp.

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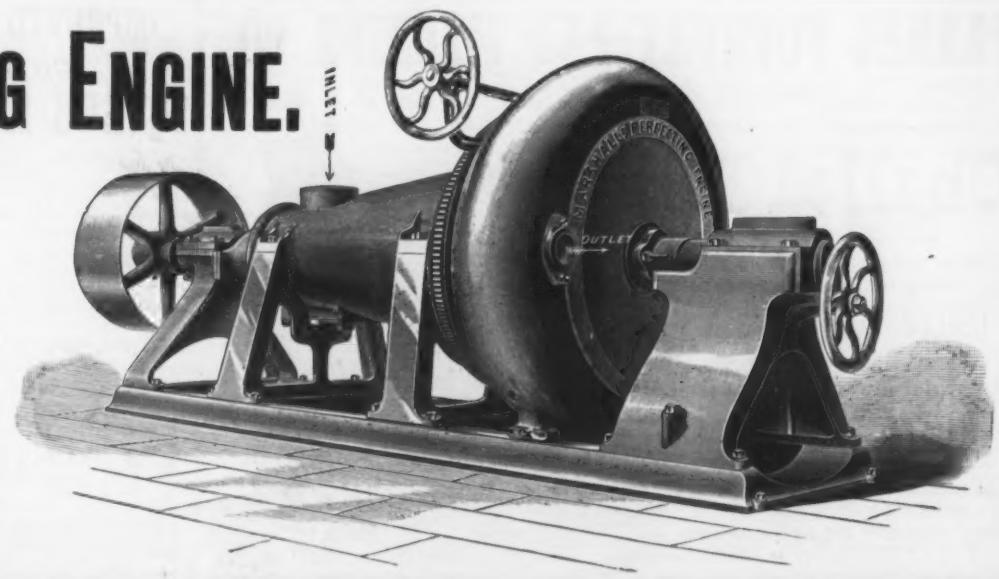


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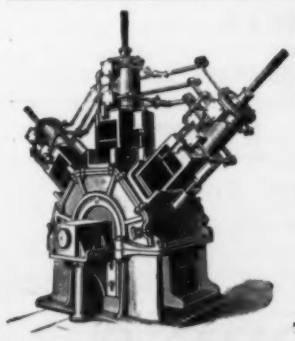

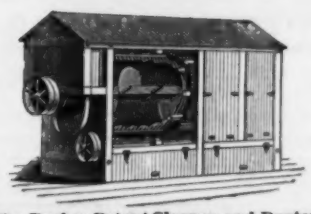

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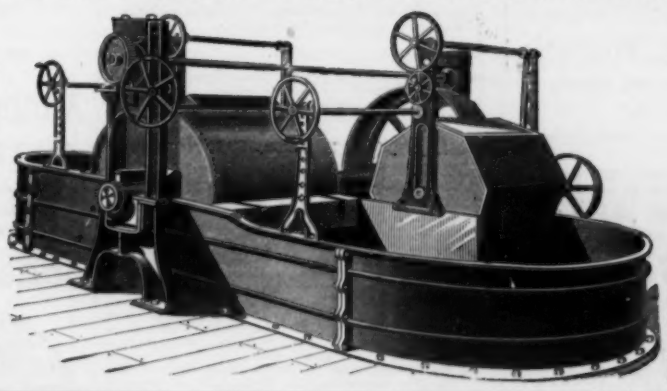

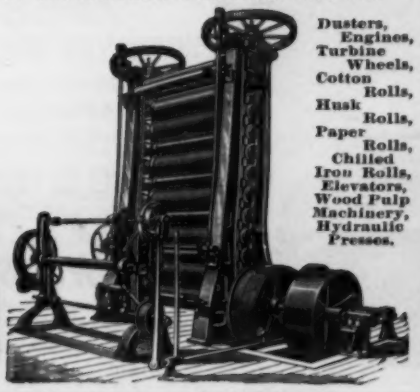

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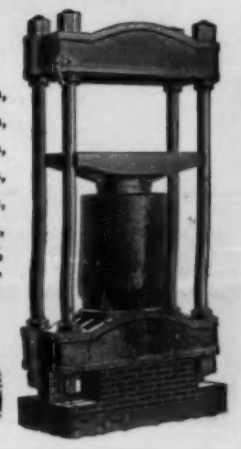

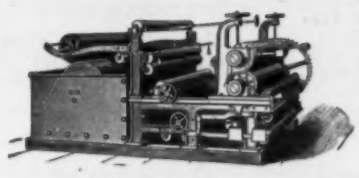

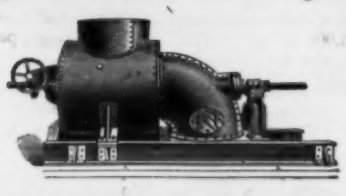

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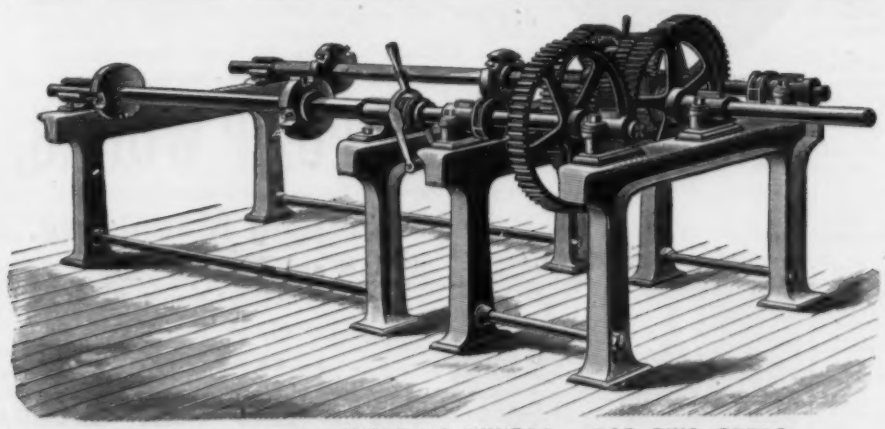

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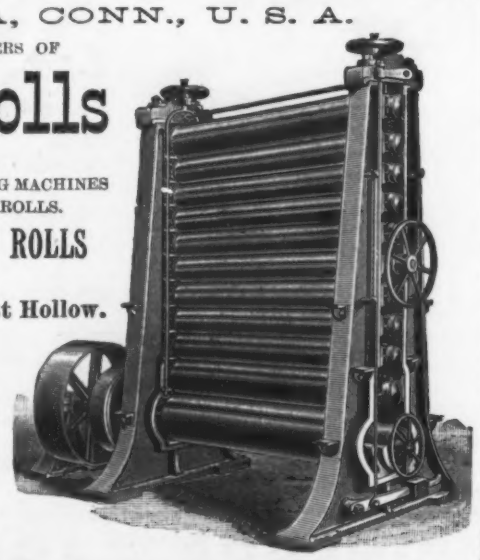

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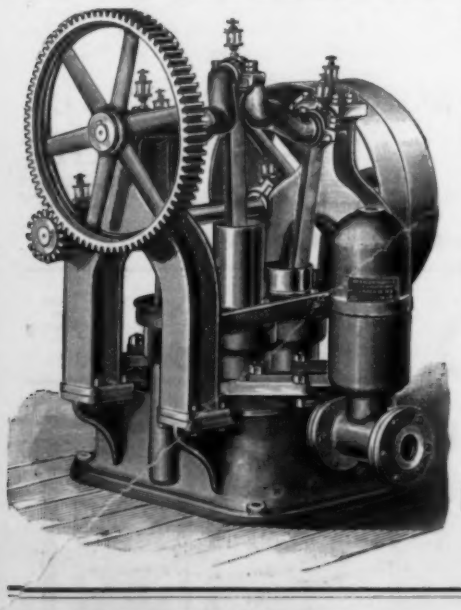

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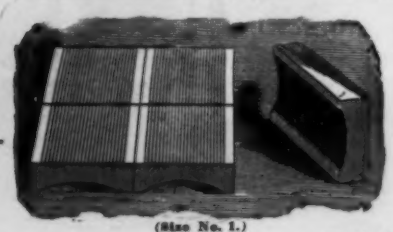

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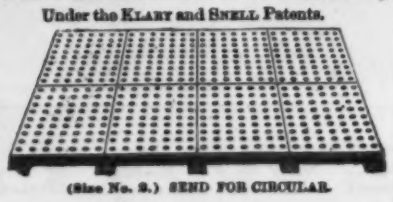

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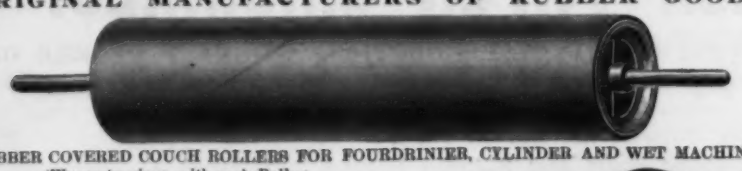

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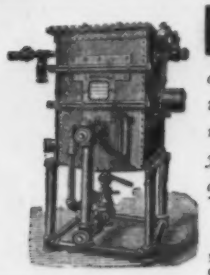

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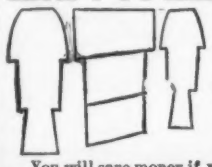

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CHAPTER II.—**Fibres.** Cellulose in its relations to the plant; the vegetable cell; the cell wall; changes which occur in the cell wall; lignin or incrusting matter; its chemical properties; characteristic markings of the cell wall in different fibres; characteristic cells other than fibres in different pulps. Classification of fibres: 1. Seed hairs; cotton, chemical and physical character of fibre, dimensions, analyses. 2. Bast fibres, as linen, jute, hemp, manilla, rhea, ramie, agave, sisal, adansonia, &c.; occurrence in plant, separation of filaments; character, size, distinguishing features of filaments and ultimate fibres, analyses and chemical properties. 3. Fibres and other cells from whole stems and leaves, as straw, esparto, bamboo; measurements and characteristics of fibres, yields, analyses; characteristic cells found with fibres. 4. Wood fibres: growth of wood; cambium layer; spring and autumn wood; sap and heart wood; resins; bark and knots; analyses of woods; specific gravities; ash; fuel values; occurrence and character of all woods used for pulp making.

CHAPTER III.—**Processes for Isolating Cellulose.** Rag boiling; special treatments for various fibres, as jute, straw, esparto; review of miscellaneous processes for treating wood; the water process, aqua regia, &c.; the soda process, history; preparation of liquors, boiling, washing, recovery, sources of loss; analyses of chemicals and liquors; the sulphite process, history; general principles; the different systems; liquor apparatus; preparation and analyses of liquors; digesters; linings; boiling; subsequent treatment of pulp; waste liquors; recovery. The sulphide and sulphate processes.

CHAPTER IV.—**Bleaching.** General principles; bleaching agents; bleaching powder; deterioration; analyses; preparation of bleach liquors; use in chests, engines, drainers; hot bleaching; acid bleaching; use of alum; chlorination and oxidation of fibre; washing stock, antichlors; loss in bleaching; ozone bleach; hydrogen peroxide; permanganate; sulphurous acid; special processes for various fibres.

CHAPTER V.—**Sizing and Loading.** Rosin; preparation of size; free alkali; free rosin; alum; analyses of alums; free acid; basic alums; sizing power; resinate of alumina; moss; casein; wax; starch; animal sizing; preparation and use; drying; loading; analyses of clays, agalite, pearl hardening, &c.; use; retention; ash; combined water; effect of alum and starch.

CHAPTER VI.—**Coloring.** Mineral colors; vegetable and animal colors; aniline colors; chemical properties; effect of alum and traces of bleach or alkali in different colors; distinguishing tests; effect of different waters.

CHAPTER VII.—**Water and Water Supply.** Character and analyses of different waters; ground waters; surface waters; river water; artesian well water; hard and soft waters; boiler scale; effect of waters on size and colors; various systems of filtration; use of alum; softening water; self purification of streams; natural filtration; effect of storage; vegetation in ponds; crenothrix; consumption of bleach by waters.

CHAPTER VIII.—**Chemical Analysis.** Description of apparatus and methods for testing the purity and strength of all paper making chemicals, colors, &c.; common impurities and adulterants given; full description of methods of analysis for sulphite and soda liquors, bleach solution, alums, &c.

CHAPTER IX.—**Paper Testing.** Full account of the latest German methods for testing and classifying papers; determination of ash; kind of sizing; amount of sizing; free acid and chlorides; strength; proportion of ground wood; kind and condition of fibres.

CHAPTER X.—**Electro-Chemistry,** with reference to bleaching, manufacturing of pulp, manufacturing of chlorine and soda.

APPENDIX.—Metric system; tables of specific gravities; strength of solutions; list of sulphite patents, &c.

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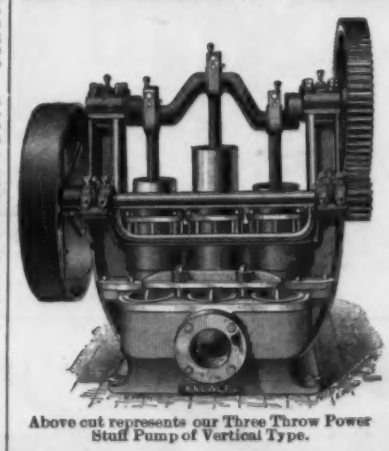

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his face. The storm which was so furious last week has left drizzling dampness behind it. No particular damage was done by the floods of rain which descended. In this respect the Fox River Valley furnishes a marked contrast to some other water power regions, where freshets of more or less destructiveness follow hard after such a period of rainfall as the country is now going through. The source of the river in Lake Winnebago is so capacious that sudden floods are absolutely unknown, and the height of the water does not vary more than 2 feet throughout the year.

The only casualty of the storm so far reported was the lightning striking the brick smoke-stack of the Atlas Paper Company of this city. A few bricks were knocked out at the top and the lightning ran down inside of the stack and blew open the doors of the fire boxes. All the electric light plugs were blown out, but no further damage was done.

There seems to be no very noticeable improvement in the condition of business in the Wisconsin paper making territory. The mills are running full as usual, but manufacturers are kept busy placing their product. The opinion is quite freely expressed that the summer months will be pretty dull ones for business.

The Badger Paper Company, of Kaukauna, last week had the courage of its convictions and placed an order with the Beloit Iron Works for a 106-inch Fourdrinier machine. The company at present has three machines located on the second floor of the mill. The new machine will be placed on the first floor. The beaters at present located there will be placed in that part of the mill formerly devoted to the wall paper department. The machine is to be put in not so much to increase the capacity of the mill as to facilitate the company in filling its orders, some of its present machines not being wide enough. There will be more economy with a larger machine.

The body of John Hutton, the Menasha paper maker, lately of Massachusetts, who was drowned in Lake Winnebago two weeks ago, was found on the beach, about 3 miles from Menasha, last Thursday. The bodies of all three of the unfortunate men have now been recovered, and an end has been put to a sad chapter in the history of this valley.

Assemblyman E. A. Edmonds, of Oconto County, the youngest member of the last Legislature, declines to be a candidate for renomination. Mr. Edmonds is interested in the Falls Manufacturing Company, which is this season increasing its business at Oconto Falls by the building of a paper mill. More private business is given as his reason for retiring from politics for the present.

A new organization is about to be perfected in Appleton. It will be known as the Fox River Valley Paper Makers' Club, and is expected to start out with a charter membership of about sixty-five. The purpose of the club is to cultivate the social side of life, and to this end it will give occasional entertainments and banquets during the year. More about the organization will transpire later.

Four representatives of the proposed "inter-urban" electric railway line between Oshkosh and Kaukauna were in town last week. They say that there is no further doubt of the building of the road and that it will be ready to go into operation the first of next year. Between Appleton and Kaukauna it will occupy the highway running along the left back of the river, and foot bridges will be constructed across the river to give access to the mills at Kimberly and Combined Locks, located on the other side. The cars will be 50 feet long, very heavy, and capable of making 30 miles an hour. They will run every hour, and oftener if traffic warrants. The company asks no favors of anybody and is thoroughly in earnest in the matter.

The six sail boats of the Neenah Yacht Club have arrived and a regatta is to be held on Memorial Day on Lake Winnebago. The membership of the club is made up of gentlemen engaged in the paper trade and great interest is taken in preparations for the coming event.

A large water tank in the tower of the Shattuck & Babcock mill at De Pere half full of water burst last week and did some damage to stock on lower floors.

Anton Manthe had three fingers badly pinched in the calenders at the Menasha mill of the Howard Paper Company last week.

Two slight accidents happened last Sunday at the Marinette and Menominee Paper Company's plant. A boy named Fred Reinke caught his arm in a belt and broke the bone in two places, and another boy named Geo. Ross fell through a hole and sustained slight injuries about the head.

Several schooners are engaged in carrying pulp wood from points along the shore of Green Bay to Kaukauna.

E. F. Millard, inventor of the Millard pulp screen, has been in town for a few days this week, coming from the East, where he has placed his screens in the mills of the Niagara Falls Paper Company and Hollingsworth & Whitney, at Waterville, Me.

F. Agge, of the Cumberland Manufacturing Company, departed for the East today, going by way of the Wisconsin River region.

A. Danielson, of Appleton, has accepted a position in the office of the Shattuck & Babcock Company, at De Pere.

Mr. and Mrs. C. S. Humphreys, of Madison, Me., are in town. Mr. Humphreys is the local superintendent of the Western mill of the Manufacturing Investment Company.

Mr. and Mrs. Howard Richmond, of Oconto Falls, are visiting Appleton friends.

Supt. J. J. Wirtz, of the Wolf River Paper and Fibre Company, has just removed his household from Kaukauna to Shawano.

J. B. Rogers, formerly with the Appleton Woolen Mills, now of Chicago, has been visiting Appleton friends of late.

G. W. Sparks, secretary and treasurer of Fairbanks, Morse & Co., of Beloit, was in town last week on a business visit.

H. M. French, of the Graham Paper Company, St. Louis, is visiting this valley.

J. C. Armstrong, of Chicago, is in town.

S. H. Bucher, of Grand Rapids, Mich., is calling upon Fox River Valley manufacturers.

FOX RIVER.

## Western New York.

[FROM OUR REGULAR CORRESPONDENT.]

NIAGARA FALLS, N. Y., May 23, 1894.

The long continued rain this week greatly muddied the water in the river, and the paper and pulp mills were bothered not a little. It has rained for five days continuously, and the water which came down the American side of the river was dark brown in color and as it plunged over the falls looked as though it was thick with mud. The Niagara Falls Paper Company had a chance to test its new filter, and it proved a "blooming success."

General Manager Swinarton, of the American Straw Board Company, of Chicago, was here with his selling agent last Saturday and had another meeting. If the trade imagines that the American Company is going to sit idly by and lose business on account of prices being cut by rival concerns, the latter are greatly misled. The American Company is going into the market, and it is safe to say will meet every cut from now on; and if the slaughter continues it will be in at the death.

Lewis A. Hall, of New York, vice-president of the Niagara Falls Paper Company, entertained some English friends at the Cataract House this week.

Probably the most exciting event here in some time was the trip of the Cataract Construction Company's officers and directors through the big tunnel on Sunday last. The water was turned off at the Niagara Falls Paper Company's mill, and the party, descending at the wheelpits, walked the entire distance. In the party were Messrs. Adams, Stitson, Wilkes, Rankine, D. O. Mills, Colonel Gouraud, Colonel Shaw, accompanied by the Countess of Glasgow, wife of the Governor General of New Zealand, and her cousin, Prof. George Forbes, the well-known electrical expert, consulting engineer of the Cataract Construction Company. The tunnel is intact, without a leak at any point.

The marriage of Eleanor H. Taylor, daughter of Thomas H. Taylor, secretary and treasurer of the Riordon Paper Company, of Merritton, Ont., to Rev. Hugh S. Dougall, of Ottawa, Ont., took place on the afternoon of May 16 at the handsome home of the bride, on Geneva street, in St. Catharines, Ont. The ceremony was performed in the presence of a few intimate friends of the family by the Rev. Burns, of Hamilton, Ont. Rev. and Mrs. Dougall took a wedding journey to Washington and through the South. The many friends of the bride extend congratulations upon her happy marriage.

W. E. T.

## Holyoke.

[FROM OUR REGULAR CORRESPONDENT.]

HOLYOKE, Mass., May 24, 1894.

How pleasant it would seem to begin a letter to THE PAPER TRADE JOURNAL: "Business is booming and the mills have all the orders that they can fill for some time to come." It is to be feared, however, that the trade will not see this condition of affairs right away. It will not come until Congress does something decided in regard to the tariff question. This can be depended on.

Business continues to be very dull, and instead of showing any signs of improvement, the tendency is the other way. I hear of two or three mills whose managers have been considering the advisability of shutting down entirely during June. There is little doubt that the manufacturers will not be sorry when the annual shut-down during the first week in July comes, and it would not be strange if some wish that it was for a longer period.

It is said that there are mills in this city which have so few orders on hand that it is a difficult matter to keep them running without accumulating stock, and no manufacturer desires to do that.

The stock market is dull and featureless and buying is very limited. Prices fluctuate from day to day, especially in the inferior grades. Buying for future needs is almost unheard of and the stocks are limited.

The Holyoke Paper Company has just elected these officers for the ensuing year: President, O. H. Greenleaf; secretary and treasurer, O. S. Greenleaf; directors, O. H. Greenleaf, C. H. Heywood, O. S. Greenleaf, W. J. Martin, H. M. Phillips, F. M. Smith; auditors, C. H. Heywood, H. M. Phillips and J. W. Kirkham. The company's affairs are in good condition considering the present state of business.

Two more annual meetings of corporations have recently been held, with these results: Crocker Manufacturing Company—Capital stock, $100,000; capital paid in, $100,000. Assets—Land, water power, buildings and machinery, $200,000; cash and debts receivable, $58,625; manufactures and merchandise, $87,893; total, $346,429. Liabilities—Capital stock, $100,000; debts, $131,693; profit and loss, $114,736; total, $346,429. Connecticut River Paper Company—Fixed capital, $150,000; capital paid in, $150,000. Assets—Land, water, buildings and machinery, $300,000; cash and debts receivable, $132,409; manufactures and merchandise, $64,671; total, $497,080. Liabilities—Capital stock, $150,000; debts, $254,793; profit and loss, $92,287; total, $497,080.

The printers' strike at the *Transcript* office is unsettled and the end seems as far off as ever. Both sides seem determined to "fight to a finish," and there is much ill-feeling between Editor Dwight and his former employees. The union sends the compositors who arrive from outside back as fast as possible, and it is understood that $400 has been expended in this way since the strike began. The latest phase is a boycott of all merchants who continue to advertise in the *Transcript*. This has worked in a few cases, but as a rule the merchants decline to be influenced. The newspaper is issued regularly, but the job department is suffering.

The Mt. Tom Sulphite Pulp Company, which has up to the present time been using the waste material furnished by the Connecticut River Lumber Company, has now begun to use logs. As a rule the small and worthless logs are being utilized after being cut into 4 foot lengths.

D. H. Mullaley, who left Springfield under a financial cloud some time ago, is in Chicago managing a daily paper, and it is said that he intends to return to Springfield soon and start a penny daily.

The old wooden building at Maynard owned by the Assabet Manufacturing Company, which was destroyed by fire a few days ago, was originally occupied as a paper mill and at one time was one of the best in the State.

This city has had sixty-eight fire alarms since December 1, against 104 for the entire year 1893. Fortunately none of the fires were serious, the largest loss during the time being $6,100.

The *Free Press* is moving to its new quarters on Dwight street and will be in running order in a few days. A new press and an entire new outfit of type is being added to the equipments.

Ex-Alderman J. P. Prescott, of the Parsons Paper Company, who has been critically ill for some time, is slowly recovering and will soon be out again.

H.

## Boston.

[FROM OUR REGULAR CORRESPONDENT.]

EASTERN OFFICE PAPER TRADE JOURNAL,
67 FEDERAL STREET,
BOSTON, May 24, 1894.

Dull business in the paper trade continues.

Now that is a fact, but not news, for it is a condition with which everybody is familiar. No theory about it.

Yet quiet as business is paper dealers are in good cheer, likewise the paper makers. They seem to view the present conditions from a future standpoint and feel that better times are coming by and by.

During the week I have met and talked with quite a number of the leading representatives of the trade, and they all think that just as soon as the tariff is settled business will begin to revive. With improvement in general business the paper trade will boom.

Among those seen were Hugh J. Chisholm, of Portland, Me.; Eben C. Webster, of Bangor, Me.; A. N. Burbank, C. E. Robertson and F. G. Flint, of Bellows Falls, Vt.; Oscar Hartwell, of Nashua, N. H.; Charles Callendar, of Glendale, Mass.; Hon. Wellington Smith, of Lee, Mass.; Charles S. Mayo, of Lawrence, Mass.; R. M. Fairfield, of Fairfield, Mass; Fred Temple, of East Pepperell, Mass.; Willard E. Everett and W. D. Russell, of Turner's Falls, Mass.; James Logan and Mr. Williams, of Worcester, Mass.; E. E. Bill, of Springfield, Mass.; Oscar Greenleaf and Arthur H. Hill, of Holyoke, Mass.; Benj. M. Jackson, of Pawtucket, R. I.; Mr. Browning, of Windsor Locks, Conn.; T. L. Barnes, of Plantsville, Conn.; Geo. A. Fletcher and Allen Fletcher, of Detroit, Mich.; C. H. Mortimer and K. B. Fullerton, of New York.

The organization of the Rumford Falls Woolen Company was perfected at a meeting held at Portland, Me., last Monday, May 21. Col. S. P. Train, of Train, Smith & Co., was elected president and Charles D. Brown treasurer. The board of directors include, besides these gentlemen, Hugh J. Chisholm, J. Fred Webster, A. G. Paine, Jr., Charles A. Brown and Waldo Pettingill. The capital stock of the company is $50,000. The construction of the plant will be started at once and is to be completed by the end of the summer. The product of the company will be paper makers' felts of superior quality.

Harry T. Bartow, of Charles D. Brown & Co., left town on Tuesday evening for the West to see his many old business acquaintances in that section and he will certainly receive a hearty welcome from his many paper making friends of the West.

Col. E. H. Haskell is expected to be in Boston in a few days, as he will arrive in New York from Europe this week.

Charles D. Brown is spending the week at Rumford Falls, Me., fishing, P. L. Bassett, of Lowell, Mass., being there also.

John Carter & Co. are making some alterations in their offices, which will be quite an improvement in the general appearance of their Federal street store when completed.

Yesterday brought another birthday anniversary to Col. S. P. Train. Just how young Colonel Train was yesterday was not stated, but his many friends were pleased to congratulate him upon the pleasant event and drink to his health many times over. Health, prosperity and happiness will be always with him if the wishes of his host of friends are granted.

The alum works of the Merrimac Chemical Company, of this city, which were partly destroyed by fire some months ago, have been rebuilt, the plant having been enlarged and many improvements introduced. The plant is now in full operation and the company is prepared to fill all orders for goods in its line. Its "Merrimac" porous alum, containing 55 per cent. sulphate of alumina, is free from iron; its "Merrimac C. P." sulphate of alumina, containing 52 per cent. sulphate of alumina, is guaranteed to be absolutely; its "Merrimac" sizing alum contains 50 per cent. sulphate of alumina and is entirely soluble, as is also its "Merrimac" newspaper alum, with 3½ per cent. free acid. The company also makes crystalized alum, lump and fine, while its quotations are favorable to paper makers.

Paper cutting for the trade is a line of business which Charles E. Perry & Co., of this city, seem to monopolize. The firm's workrooms are located at Nos. 183 and 185 Congress street, right in the heart of the city paper trade district, but its business is not confined to the city trade, as many tons of paper find their way into Charles E. Perry & Co.'s rooms from out of town dealers and manufacturers. That the business of this firm is constantly increasing shows for itself in the busy workroom. Five large paper cutting machines and seven roll cutters of the latest improved make are in constant operation from day to day, cutting and rolling paper. Mr. Perry himself gives his personal attention to the business, which he thoroughly understands, and because of his perfect knowledge is the better able to direct and govern the labors of his large force of workmen. In the last two years Mr. Perry has built up quite an extensive business in the cutting of special rolls for cash registers, police and fire alarm service and for telegraph use, orders for such rolls coming from nearly every State in the union, the rolls being cut to any size wanted. The firm's facilities are such that rolls from one-eighth of an inch to 54 inches wide can be cut and can be wound any diameter up to 24 inches, with inside hole from seven-sixteenths of an inch to 2½ inches. In addition to paper cutting Charles E. Perry & Co. can execute any order for wire stitching, punching and eyeletting, calendar work, block and pad manufacturing, pamphlet work, round cornering, &c., and the work done in the best possible manner, since the firm has every facility for the execution of the various lines of work.

DELESDERNIER.

## Northern New York.

[FROM OUR REGULAR CORRESPONDENT.]

WATERTOWN, N. Y., May 24, 1894.

The Taggert Paper Company, of Felt's Mills, is in the procession as regards improvements, despite the hard times. It broke ground on the 21st inst. for its new finishing room. The excavations for the foundations will be completed this week, and everything will be ready for the masons next week. The building will be completed by July 1.

A fatal accident occurred at the Jefferson Paper Company's mills at Black River on Monday. Leslie Gordon, an employee on a winder, had his hand caught between the roll and his arm was drawn in, fracturing his collar bone and injuring him internally. He was taken home, where he died the same evening. Young Gordon was the only support of a widowed mother and three young sisters.

O. T. Martin, of Norwood, has shut down his pulp mill temporarily, owing to a surplus of product on hand.

W. E. T.

## Obituary.

### ANDREW J. GRAHAM.

Andrew J. Graham, author of the Graham system of phonography, died at his residence, in Cleveland street, Orange, N. J., on May 19, of Bright's disease. He was born at Green Creek, Sandusky County, Ohio, August 2, 1830. Forty years ago he established the publishing business in New York city, which is now carried on under the firm name of A. J. Graham & Co.

### FRANCIS WILLIAM BIRD.

Francis W. Bird died at his home in Walpole, Norfolk County, Mass., on May 23, aged eighty-four years and seven months. He was the son of George and Martha (Newell) Bird, of Dedham, Mass., at which town he was born on October 22, 1809. Mr. Bird was fitted for college at Day's Academy in Wrentham, his preceptor being Isaac Jenkins. In September, 1827,

FRANCIS W. BIRD.

just before he had completed his eighteenth year, Francis W. Bird entered Brown University at Providence, R. I., from which celebrated American institution of learning he was graduated in 1831. His health failed during the following year, and he was therefore unable to study for a profession as he had intended. On April 1, 1833, he began his long and active business life at East Walpole, Mass., where he manufactured paper for a continuous period exceeding three score years.

Up to March, 1882, Mr. Bird had sundry partners; but, at the date mentioned, his son Charles Sumner Bird, joined him, and the well-known firm of F. W. Bird & Son was then established.

Mr. Bird had long and honorable association with the government of his native State. He was a member of its house of representatives (called the General Court in Massachusetts) in 1847 and 1848, and a member of the Massachusetts Executive Committee under Governor Boutwell in 1852. He held the same position in 1863, 1864 and 1865 under John A. Andrew, the famous war governor. In 1853 he was a member of the State Constitutional Convention. From 1854 to 1861 Mr. Bird was out of public life on account of his vigorous opposition to the Know Nothing party. He was, however, again elected in 1867 and in 1869 to the Massachusetts House of Representatives and two years later to the State Senate, declining renomination to that body on account of impaired health. For thirty years, from 1848 to 1878, Mr. Bird served on various State commissions. To quote his own quaint phrase, his business success was "very fair, considering that so large a portion of time was given to public service, generally without money and without price; $2 a day being the usual price when we legislators were paid at all."

Francis William Bird was in 1872 among the candidates named in convention for nomination as Governor of Massachusetts. His intimate political friends were Henry Wilson, Charles Sumner and other great men contemporary with him. In later years his life was one of comparative retirement, although he never allowed his keen interest in matters of public welfare to be diminished. He was twice married. His first wife was Rebecca Hill Cooke, of Providence, R. I. She died on February 5, 1835, leaving one daughter, who survived until midsummer of the following year. On June 20, 1843, Mr. Bird was married to Abby

Frances Newell, of Boston, Mass., who yet lives at a ripe age. There were six children, four daughters and two sons. Francis William Bird, Jr., his namesake, died in July, 1874. Mary Reynolds Bird, one of the daughters, died at the homestead in East Walpole on Thursday of last week.

THOMAS NILES.

Thomas Niles, one of the oldest book lovers and book publishers, of Boston, and a member of the firm of Roberts Brothers, died at Perugia, Italy, on May 18. He was born in Boston in 1825. After his graduation from the Latin School he became a clerk in the publishing house of Ticknor, Reed & Fields at the famous Old Corner Bookstore, remaining with them for sixteen years, a part of the time taking the entire charge of the publishing business. Then he retired from the position, giving place to James S. Osgood, and entered the publishing house of Whittemore, Niles & Hall. Afterward he made a connection with the house of Roberts Brothers, and after several years' service became a partner in 1872.

RICHARD MAJOR.

Richard Major, who was formerly head of the Major & Knapp lithographing establishment, died of heart disease at his home, Park place and New York avenue, Brooklyn, on the 18th inst. He was sixty-seven years old. He retired from business five years ago. Mr. Major was superintendent of the Bedford Avenue Baptist Church Sunday School for a long period. He was a director in the Metropolitan Life Insurance Company. He leaves three sons and one daughter.

EDWARD B. BARTLETT.

Edward B. Bartlett, who will be remembered as the executive head of the company which some years ago went into the business of disinfecting rags by superheated steam, died suddenly on Thursday at his home in Brooklyn. He was born in Portland, Me., fifty years ago, and spent most of his business career in the warehousing line. He stood prominent in business circles, was a member of the Chamber of Commerce, Coffee, Maritime and Produce Exchanges, as well as a number of clubs. He leaves a widow and two daughters.

Thomas Walker, secretary of the *Courier-Journal* Company, died on Thursday afternoon in Louisville, Ky., of dropsy. He was forty-seven years old, and had been in the *Courier-Journal* counting room for twenty-eight years.

A simple method of measuring belting in the roll, and which is said to be very closely correct, is as follows: The sum of the diameter of the outside and inside on the roll in inches, multiplied by the number of turns made by the belt, and this product multiplied by the decimal .1309, will be the length of the belt in feet.

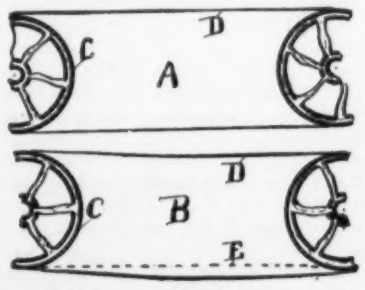
An electric ventilator has been devised for supplying buildings with fresh air, cold or warm, as may be desired. An electric motor sets the ventilator revolving, and the revolution sucks cool air in. When warm air is desired, a current of electricity is sent into a network of fine wire, through which the air must pass, heating the wires, and these impart their heat to the air.

## New Inventions—XXXVI.

[WRITTEN FOR THE PAPER TRADE JOURNAL.]

BY GEO. DAMON RICE.

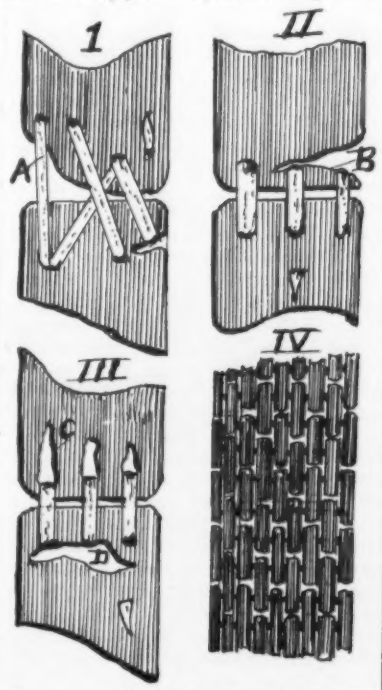
Since the advent of belting made from paper there has been something of a controversy going on among mill mechanics respecting the various advantages of one kind of belting over another. The varying opinions regarding the different kinds of belting has caused the parties interested in paper belting to make certain experiments with a view of testing the practical qualities of the several kinds. There are in use now three kinds of belting for driving purposes, aside from that made from paper and which has not yet had a chance for permanent introduction. Perhaps the various tests which have been applied to these different beltings will interest the reader. The writer has investigated into the matter and has visited the apartments in which the experiments are being carried on under the direction of expert mill engineers. In the experimental shop there is a special apparatus for belt testing. It consists of a series of four running pulley sets, there being two pulleys in each set. The pulleys are 8 inches wide, and regular width 8-inch belting is used in the experiments. The pulleys in each set, consisting of two of the same diameter, are set in bearings opposite each other, as shown in the following cut:




PULLEYS ARRANGED FOR EXPERIMENTAL PURPOSES.

The pulleys are indicated by the letters C C, and the line of belting by D D. In testing, the belting is tried with the belt tight, as in the set marked A, and later is tried loose, as in the set B. In the first instance it can be seen that the belt is quite tight, and so the test must indeed be severe on the unions and laps of the belting as well as to the material of which it is made. In the second case the belt is permitted to run quite loose, as may be seen by comparison with the dotted line E in the set B. The dotted line is straight across, but the belts sag. In testing, the belt is run thirty days one way and thirty more the other. The running is continued night and day and at a high speed. Some of the results procured are exhibited in the next diagram.

In this illustration Figure I. is a representation of a sample of leather belting showing the condition of the union at the butts after the belt has run thirty days on pulleys set as in A, and thirty days as in B in the same drawing. The condition of the union is a pretty sure indication of the wear to which a belt has been subjected. The point is to get a belt which will stand the wear best. Leather is good, and is capable of standing hard strains and excessive wear, but if the men who lace the belts are not capable of making a good, strong union the butts will open and break at A, as shown in the cut. A belt is no stronger than its weakest part, so this makes the belt weak. It is weak because a poor union makes it so, and the poor union seems to be something which cannot be avoided. Iron, steel and other clamps are sometimes used to unite the ends; but these, too, are not perfection. Next in Fig. II. we have a sample of a rubber belt which was run thirty days and nights taut, and thirty days and nights loose. The result obtained is indicated by the break at B. Yet rubber belting is good, and for damp places is just the thing. Next




RESULTS OF SEVERE TESTS OF BELTING.

is a representation of canvas belting, Fig. III., showing the appearance of the union after having run sixty days the same as the other kinds. The breaks are shown at C and D. Canvas belting is cheap and for some purposes is good, but it is difficult to get a strong union of the butts.

Lastly comes the paper belting represented in Fig. IV. I have no fine arguments to offer for this belting, except that after it had run sixty days and nights, taut and loose, a close examination failed to reveal a broken union, because there are no unions to break. The butts are untied by removing a rod which runs through the links from side to side, and this rod is reinserted at will. A peculiarity of the paper belt is that the longer it runs over a hard surface, like the face of a pulley, the harder and tougher the paper becomes. In a short time it is almost as hard as metal. Then it is very cheap, and will evidently be sold far below the cost of leather, rubber or canvas belting.

## New Quarantine Regulations.

Under a law of Congress, passed last year, entitled "An Act granting additional powers and imposing additional duties upon the Marine Hospital service, the Secretary of the Treasury has issued a new series of quarantine laws and regulations. In so far as they refer to paper stock, they are as follows:

Art. IV., Par. 6.—All rags and all textile fabrics used in the manufacture of paper, collected or packed in any foreign port or place, must, prior to shipment to the United States, be subjected to disinfection by one of the prescribed methods. (Old jute bags, old cotton bags, old rope, new cotton and linen cuttings from factories not included.)

Par. 7.—Rags, old jute, old gunny, old rope and similar articles, gathered or packed or handled in any port or place where cholera or yellow fever prevails, or smallpox or typhus fever prevails in epidemic form, should not be shipped until the officer issuing the bill of health shall be satisfied that the port or place has been for thirty days free from such infection and after the disinfection of the articles.

Art. VII., Par. 3.—Disinfection of rags and old jute, &c., shall be by one of the following methods: (*a*) By boiling in water not less than thirty minutes; (*b*) by steam at a temperature of 100° C. for not less than thirty minutes after such temperature is reached; (*c*) by exposure for not less than six hours in a closed compartment to a 4 per cent. strength (per volume) of sulphur dioxide gas—made by burning roll sulphur or by the liberation of liquefied sulphur dioxide—allowance to be made for leakage by increasing the amount of sulphur.

Par. 4—In all of the above methods, the rags, old jute, &c., must be unbaled, and in the disinfection by steam or sulphur the rags must be loosely spread on racks (preferably wire netting) in layers of not more than 6 inches in depth, and in such a manner as to insure the diffusion of the gas to all parts alike.

The articles must not at any time occupy more than 50 per cent. of the total cubic space, and the exposure to date from the complete combustion of the sulphur.

The foregoing are to be observed at foreign ports and at sea. Similar regulations to be observed at ports and on the frontiers of the United States are as follows:

Art. VII., Par. 4.—All rags and old textile fabrics used in the manufacture of paper, and all old gunny, old jute, &c., fit only for remanufactures, gathered, collected, packed or handled in any port or place where cholera (cholerine) or yellow fever exists, or where smallpox or typhus fever prevails in epidemic form, and for thirty days after the port or place shall be officially declared free from such diseases or epidemic, shall be denied entry into any port of the United States.

Par. 5.— No rags or old textile fabrics used in the manufacture of paper, or articles enumerated in the preceding paragraph, which have not been disinfected in accordance with Article VII., paragraph 3, of the United States Quarantine Regulations for Foreign Ports, shall be admitted into the United States. (Old jute bags, old cotton bags, old rope, new cotton and linen cuttings from factories, not included.)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ROZÈS AINÉ & FRÈRES, Agen,
Well-known Packers of Linens and Cottons.
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May 1st, 1894, . . . 2,591,000

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REUTLINGEN—GERMANY.
Rotary Strainer for Chemical Wood Pulp.
USED BY THE FOLLOWING PAPER MILLS:

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Schlesische Sulfit-Cellulosefabrik Feldmühle & Liebau, 14 St.
Ludwig Trick in Kehl, 10 St.
Zellstoff-Fabrik Waldhof, 7 St.
Kostheimer Cellulosefabrik, Kostheim bei Mainz, 7 St.
Korn & Bock in Czulow, 7 St.
Verein für Zellstoff-Industrie in Dresden, 6 St.
Cellulosefabrik Heidenau, 6 St.
Papierfabrik Baienfurt bei Weingarten, 5 St.
Hannoversche Papierfabriken Alfeld-Gronau, 5 St.
Papier & Papierstoff-Fabrik Niederkaufungen, 4 St.
Hösch & Co. in Pirna, 4 St.
Gebr. Dietrich in Merseburg, 4 St.
Gebr. Vogel in Zell im Wiesenthal, 3 St.
J. F. Sutter Söhne in Neustadt im Schwarzwald, 3 St.
Tillgner & Co. in Ziegenhals, 3 St.

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Cellulosefabrik Rattimau, 9 St.
J. Spiro & Söhne in Böhm-Krumau, 4 St.
Ellissen, Rödter & Co. in Ulmerfeld, 3 St.
Brune & Kisker in Nestersitz, 2 St.
V. Thumb Erben in Wien, 2 St.

SCHWEIZ.
Dr. B. Sieber in Attisholz, 12 St.
Papierfabrik Biberist, 4 St.
Fabriken Landquart, 4 St.

FRANKREICH.
G. Legrand, à Monfourat, par les Eglisottes, 7 app.
P. Bichelberger, Champon & Cie. à Etival (Vosges), 5 app.
Société Industrielle de Mios (Gironde), 2 app.

ITALIEN.
Vonwiller & Co. in Romagnano-Sesia.

SPANIEN & PORTUGAL.
Caima Wood Pulp Co. in Oporto.

ENGLAND.
Hull Chemical Wood Pulp Co. in Rawcliffe (Yorksh.)
Marsden Chemical Co. in Newcastle-on-Tyne.

SCHWEDEN & NORWEGEN.
Cellulose- & Papierfabrik Böhnsdalen, 10 App.
Union Co. in Skien, 7 App.
Hafslund chem. Trämassefabrik, Sarpsborg, 6 App.
Kellner-Partington Paper Pulp Co. in Borregard, 6 App.
Vestfoss Cellulosefabrik in Christiania, 6 App.
Scotselv Cellulosefabrik in Scotselv bei Drammen, 4 App.
O. Tobiesen in Lysacker, 2 App.
Tidafors Sulfit Act. Bol. in Uddevalla.
Storviks Sulfit Act. Bol. in Storvik.

DÄNEMARK.
Fredriksberg Papierfabrik in Kopenhagen, 3 App.
Forenede Papierfabrikker in Kopenhagen.

FINNLAND.
Kymmene Aktiebolog in Abo, 10 App.

RUSSLAND.
A. Hoffinger & Co. in Riga, 3 App.
H. J. Pallisen in St. Petersburg, 3 App.
W. J. Passburg in Oknlowka, 2 App.
M. G. Kuwschinow'sche Papierfabrik in Moskau, 2 App.

AND MANY OTHERS.

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OF ANY SHAPE OR CAPACITY, FOR
PAPER AND PULP MILLS.

19 WHITEHALL STREET, NEW YORK. OFFICES: 160 STATE STREET BOSTON.
—Illustrated Catalogue upon Application.—

# Imports and Exports.

## IMPORTS AT NEW YORK.

FOR THE WEEK ENDED MAY 18, 1894.

| | | | | | |
|---|---|---|---|---|---|
| An. Colors.. | 655 | $42,498 | Paper..... | 534 | $28,178 |
| Alum..... | — | — | Steel Pens... | — | — |
| Alum's Cake | — | — | Stationery... | 9 | 341 |
| Bl. Powders | 549 | 8,501 | Slate Pencils | 185 | 1,070 |
| Soda Ash... | 6,274 | 17,460 | Clay..... | — | 8,023 |
| Soda, Caus. | 344 | 3,591 | J'te B'ts, &c. | — | — |
| Soda, Sal.... | 250 | 386 | P. Hangings | 10 | 532 |
| Soda, Hypo. | — | — | P'p'r Stock.. | 4,394 | 29,037 |
| Ultramarine | 10 | 335 | Terra Alba.. | — | — |
| Books..... | 298 | 39,026 | Waste..... | — | — |
| Newspapers. | 210 | 7,848 | Wood Pulp.. | — | — |
| Engravings. | 92 | 6,002 | | | |
| Ink..... | 18 | 456 | | | |
| Lead Pencils | 1 | 317 | Totals.... | 13,733 | 193,601 |

Imports General Merchandise for the week ended May 18, 1894.....$6,628,203

## IMPORTS OF PAPER STOCK AT NEW YORK.

FROM JANUARY 1 TO MAY 23, 1894.

| *Whence Imported.* | *Rags.* | *Old Papers.* | *Chemical Fibre.* | *Ground Wood.* | *Manilla Stock.* |
|---|---|---|---|---|---|
| | Bales. | Bales. | Tons. | Tons. | Bales. |
| Alexandria... | 1,249 | .... | .... | .... | .... |
| Antwerp..... | 284 | 259 | 647 | .... | 5,319 |
| Aspinwall.... | 90 | .... | .... | .... | .... |
| Bordeaux..... | 548 | .... | .... | .... | .... |
| Bremen ..... | 532 | .... | .... | .... | 3,930 |
| Bristol..... | .... | .... | .... | .... | 1,950 |
| Buenos Ayres. | 26 | .... | ... | .... | .... |
| Calcutta..... | .... | .... | .... | .... | 2,797 |
| Cent. America | 60 | .... | .... | .... | .... |
| Christiania.... | .... | .... | 396 | .... | 474 |
| Copenhagen.. | 353 | .... | 630 | .... | 913 |
| Dublin..... | .... | 186 | .... | .... | .... |
| Dundee..... | .... | .... | .... | .... | 611 |
| Dunedin..... | .... | .... | .... | .... | 183 |
| Fiume..... | .... | .... | 99 | .... | .... |
| Geestemunde. | 232 | .... | .... | .... | 1,309 |
| Genoa..... | .... | .... | ... | .... | 3,256 |
| Glasgow..... | 288 | 77 | .... | .... | 187 |
| Gothenburg.. | .... | .... | 52 | .... | .... |
| Hamburg..... | 1,086 | 103 | 443 | .... | 2,516 |
| Hamilton..... | .... | .... | .... | .... | 42 |
| Hiogo..... | 7,119 | .... | .... | .... | .... |
| Hong Kong... | 43 | .... | .... | .... | .... |
| Hull.....a | 1,706 | 198 | 889 | .... | 8,272 |
| Kobe..... | 97,285 | .... | .... | .... | .... |
| Leghorn..... | 1,520 | .... | .... | .... | .... |
| Leith..... | .... | 159 | .... | .... | .... |
| Liverpool..... | 189 | 740 | .... | .... | 10,518 |
| London..... | 2,050 | 1,357 | 20 | .... | 7,209 |
| Marseilles.... | 86 | .... | .... | .... | 473 |
| Nassau..... | 48 | .... | .... | .... | .... |
| Newcastle.... | .... | 73 | .... | .... | 1,408 |
| Rio..... | 26 | .... | .... | .... | .... |
| Rotterdam.... | 435 | .... | 414 | .... | 4,727 |
| Southampton. | .... | .... | .... | .... | 160 |
| Stettin..... | 2,054 | .... | 596 | .... | 5,222 |
| Trieste..... | .... | .... | 49 | .... | .... |

a. Including 347 bales cotton waste.

## NEW YORK IMPORTS.

FROM MAY 16 TO MAY 23, 1894.

*Paper Stock.*

James Pirnie, Friesland, Antwerp, 338 bs. bagging.
A. Goldman, Sorrento, Antwerp, 15 tons chemical fibre.
G. Rau, Panama, Bordeaux, 318 bs. rags.
F. Bertuch & Co., Amerika, Copenhagen, 171 tons chemical fibre.
James Pirnie, by same, 152 bs. bagging.
Liebmann & Co., Norwegian, Glasgow, 59 bs. rags.
J. W. Mason & Co., by same, 52 bs. manillas.
Burgass & Co., by same, 58 bs. manillas.
F. Salomon & Co., Sorrento, Hamburg, 28 bs. rags, 78 bs. bagging, 57 bs. manillas.
R. Tobin & Son, Trinidad, Hamilton, 42 bs. manillas.
Train, Smith & Co., Bengalore, Hong Kong, 43 bs. rags.
James Pirnie, Nomadic, Liverpool, 243 bs. bagging
J. Libmann, by same, 26 bs. rags.
Train, Smith & Co., by same, 180 bs. bagging.
H. Dutton & Co., by same, 144 bs. manillas.
James Pirnie, France, London, 158 bs. bagging.
G. Stratford, by same, 120 bs. manillas.
H. Dutton & Co., by same, 56 bs. manillas.
A. Smith & Co., by same, 223 bs. papers.
Darmstadt & Scott, by same, 41 bs. papers.
G. W. Millar & Co., by same, 130 bs. bagging.
James Pirnie, Chester, London, 165 bs. bagging.
James Pirnie, Maasdam, Rotterdam, 228 bs. bagging.
James Pirnie, Obdam, Rotterdam, 293 bs. bagging.
Train, Smith & Co., Carlisle, Rotterdam, 195 bs. bagging.
Train, Smith & Co., Venetia, Stettin, 292 bs. bagging.
Castle & Gottheil, by same, 10 tons chemical fibre.

*Paper.*

E. & H. T. Anthony & Co., Maasdam, Rotterdam, 27 cs.
G. Gennert, by same, 10 cs.
W. Campbell & Co., Circassia, Glasgow, 5 bs.
W. Heuermann, Lahn, Bremen, 1 cs.
Hensel, Bruckmann & L., Carlisle, Rotterdam, 11 cs.
Henry Lindenmeyr & Sons, by same, 31 cs.
Chas. D. Stone & Co., by same, 4 cs.
John Munroe & Co., Venetia, Stettin, 33 cs.
B. Lawrence Stationery Company, Germanic, Liverpool, 4 cs.
B. & O. Meyer, by same, 2 cs.
McCann & Harris, by same, 3 cs.
Vernon Brothers & Co., by same, 1 cs.
Nevius & Haviland, by same, 2 cs. hangings.
McHugh & Co., La Touraine, Havre, 1 cs. hangings.
Warren, Fuller & Co., by same, 2 cs. hangings.
D. D. Steinhardt & Co., Moravia, Hamburg, 5 cs.
R. F. Lang, by same, 6 bs.
Dinglestedt & Co., by same, 17 cs.
G. Gennert, Veendam, Rotterdam, 5 cs.
Dennison Manufacturing Company, Etruria, Liverpool, 21 bs.
C. D. Stone, Sorrento, Antwerp, 15 cs.
Walter C. Place, by same, 10 bs.
H. S. Leclercq, by same, 10 bs.
A. V. Benoit, Chester, London,, 2 cs.
Favor, Ruhl & Co., by same, 2 cs.

## BOSTON IMPORTS.

FROM MAY 17 TO MAY 23, 1894, INCLUSIVE.

*Paper, &c.*

Wm. Guild & Co., Cephalonia, Liverpool, 5 bs. periodicals.
Dennison Manufacturing Company, by same, 14 bs., 20 cs. tissue paper.
J. Dickinson & Co., by same, 9 cs. paper.
Glenlyon Dye Works, by same, 5 cs. press paper.
McRitchie & Co., Ottoman, Liverpool, 22 pkgs. paper.
J. Dickinson & Co., Oranmore, London, 33 cs. paper.

*Paper Stock.*

Train, Smith & Co., Oranmore, London, 196 bs. rags.
Horace Dutton & Co., by same, 125 bs. rags.
Horace Dutton & Co., Nessmore, London, 62 bs. rags.
Train, Smith & Co., Nestorian, Glasgow, 62 bs. waste paper.
Horace Dutton & Co., by same, 123 bs. waste paper.
Train, Smith & Co., Ottoman, Liverpool, 214 bs. rags.
C. A. Cheney, by same, 237 bs. manillas.
C. A. Cheney, Michigan, Liverpool, 15 bs. rags.
R. H. Overton & Son, by same, 347 bs. manillas.
C. A. Cheney, Cambroman, Liverpool, 5 bs. cotton waste.
R. H. Overton & Son, by same, 73 bs. manillas.
C. A. Cheney, Columbian, Liverpool, 200 bs. rags.
True & McClelland, by same, 30 bs. rags, 80 bs. waste paper, 63 coils manillas.
Train, Smith & Co., Rialto, Antwerp, 349 bs. rags.
Castle & Gottheil, by same, 220 bs. rags.
Horace Dutton & Co., by same, 786 bs. flax waste.
Train, Smith & Co., Francisco, Hull, 92 bs. rags.
Felix Salomon & Co., by same, 105 bs. rags.
Horace Dutton & Co., by same, 66 bs. rags.
Perkins, Goodwin & Co., by same, 73 bs. manillas.

*Wood Fibre.*

Fred. Bertuch, Francisco, Hull, 373 bs.
Wm. Russell & Son, by same, 160 bs.

*Sizing.*

Train, Smith & Co., Ottoman, Liverpool, 83 bags.
C. A. Cheney, Michigan, Liverpool, 483 bags.
C. A. Cheney, Cambroman, Liverpool, 206 bags.
Thomas Groom & Co., by same, 75 bags.
Baeder, Adamson & Co., by same, 54 bags.

*Pulp Stones.*

Lombard & Co., Francisco, Hull, 41 stones.

*Bleaching Powder.*

J. L. & D. S. Riker, Columbian, Liverpool, 143 cks.
Linder & Meyer, by same, 48 cks.
Arthur Turnbull, by same, 25 cks.
Order, by same, 24 cks.
Wing & Evans, Francisco, Hull, 86 cks.
Fuerst Brothers, by same, 120 cks.
Fuerst Brothers, Georgian, Liverpool, 45 cks.
Linder & Meyer, by same, 21 cks.
J. L. & D. S. Riker, by same, 527 cks.
J. L. & D. S. Riker, Cambroman, Liverpool, 180 cks.
J. L. & D. S. Riker, Michigan, Liverpool, 176 cks.
J. L. & D. S. Riker, Ottoman, Liverpool, 180 cks.

*Caustic Soda.*

Edward Hill's Son & Co., Ottoman, Liverpool, 100 drums.
Wilson, Paterson & Co., by same, 50 drums.
James Lee & Co., Cambroman, Liverpool, 50 drums.
Edward Hill's Son & Co., by same, 575 drums.

*Soda Ash.*

Wing & Evans, Cephalonia, Liverpool, 33 cks.
A. Klipstein, by same, 24 cks.
Order, by same, 100 bags.
Warren & Co., Ottoman, Liverpool, 96 cks.
Warren & Co., Michigan, Liverpool, 200 bags.
Warren & Co., Cambroman, Liverpool, 190 bags.
Wing & Evans, Georgian, Liverpool, 600 bags.
Wing & Evans, Columbian, Liverpool, 32 cks., 200 bags.
J. L & D. S. Riker, by same, 13 cks., 160 bags.
Morey & Co., by same, 35 cks.
A. Klipstein, by same, 25 cks.

*Refined Alkali.*

J. L. & D. S. Riker, Georgian, Liverpool, 90 cks.
J. L. & D. S. Riker, Columbian, Liverpool, 87 cks.

*China Clay.*

True & McClelland, Columbian, Liverpool, 80 cks.

*Crude Sulphur.*

Linder & Meyer, Columbian, Liverpool, 2,003 bags.
Linder & Meyer, Georgian, Liverpool, 1,335 bags.

## EXPORTS of Paper, &c., from New York for the Week Ended May 22, 1894.

BOOKS, cases, to London, 2; British West Indies, 21; British Australasia, 15; Cuba, 1; Mexico, 1; Venezuela, 3; Danish West Indies, 5; Dutch Guiana, 2; Havre, 10; New Zealand, 34; San Domingo, 1; Argentine Republic, 375; Asia, 5; Colombia, 3; Amsterdam, 1; Brazil, 10; Bremen, 2; Chili, 3; Hamburg, 9; China, 2; Constantinople, 6; Rotterdam, 4; Uruguay, 2.

PAPER, to Cuba, 476 pkgs.; British West Indies, 447 pkgs.; Venezuela, 6 cs.; Colombia, 40 pkgs.; London, 254 cs.; Brazil, 103 pkgs.; Liverpool, 123 cs.; San Domingo, 231 pkgs.; Hayti, 9 pkgs.; Mexico, 353 pkgs.; Hamburg, 4 cs.; Japan, 1 cs.; Porto Rico, 518 pkgs.; Uruguay, 17 cs.; Central America, 22 pkgs.; China, 2 cs.; Danish West Indies, 29 pkgs.; Dutch West Indies, 2 pkgs.; French West Indies, 6 cs.; Glasgow, 29 cs.; Manchester, 2 cs.; Palermo, 1 cs.; Southampton, 3 cs.; New Zealand, 500 pkgs.

STATIONERY, cases, to Cuba, 15; Colombia, 32; London, 20; British Australasia, 19; Venezuela, 11; Hayti, 3; Liverpool, 1; New Zealand, 25; China, 1; Dutch West Indies, 1; Hull, 2; Mexico, 9; Southampton, 24; Antwerp, 3; Brazil, 4; Asia, 2; Bremen, 8; British West Indies, 18; Central America, 7; Danish West Indies, 1; Ecuador, 5; Gothenburg, 26; Porto Rico, 33; San Domingo, 1.

WALL PAPER, bales, to Central America, 4.

STRAWBOARD, cases, to Cuba, 50; London, 39.

PAPER BAGS, packages, to British Australasia, 52.

CARDBOARD, cases, to Cuba, 20.

CARDS, cases, to Cuba, 1; Hong Kong, 1; Japan, 2.

AGGREGATES AND VALUES.

| | | |
|---|---|---|
| Paper, reams..... | — | — |
| Paper, pkgs..... | 3,160 | $18,679 |
| Paper, cases..... | 430 | 8,176 |
| Books, cases..... | 118 | 12,960 |
| Stationery, cases..... | 243 | 8,748 |
| Rosin, bbls..... | 5,934 | 17,883 |
| Totals..... | 9,891 | $65,746 |

Exports General Merchandise for the week ended May 22, 1894..... $7,140,215

## Paper Cutting Machine.

An improvement in machines for cutting sheets of paper into varying lengths, according to requirements, contemplates the provision of means so that by decreasing or increasing the diameter of an expansible feed roll more or less paper can be fed to the cross-cut knife in the interim elapsing between the last cut and the next succeeding one, thereby cutting from an endless web of paper into the required sheets of various lengths without interfering with the continuous operation of the machine. Owing to the fact that the feed roll itself is variable in diameter under the control of the operator to feed the necessary length of cut, the cross-cut knife and the feed roll can be directly connected by inflexible and invariable gearing, thus precluding any possibilty of slip between the two. By this invention the difficulty which has been experienced in cutting paper to "water mark" is entirely obviated. In having changeable or variable gearing, such as are present on lathes, it is almost impossible to obtain the exact length of cut required. The usual result is that the sheet is a little long or a little short. In like manner, where the knife and feed are connected by chain or sprocket gearing, it is very difficult to adjust the latter while the machine is in motion; and in cutting to "water mark" this type of machine is impracticable.

The invention has for its further object, to provide a machine of this class which will be simple in construction, inexpensive in utilizing machines for this latter purpose, manufacture, durable in use and eminently serviceable and efficient in operation.

When anyone was speaking ill of another in the presence of Peter the Great he would shortly interrupt him and say: "Well, but has he not a bright side? Come, tell me what you have noticed as excellent in him? It is easy to splash mud, but I would rather help a man to keep his coat clean." Whenever you catch yourself making a detracting remark say something approving in the same breath and you will soon be cured.


TRAIN, SMITH & CO.,
*IMPORTERS OF AND DEALERS IN*
—ALL DESCRIPTIONS OF—
Paper Makers' Supplies,
24 FEDERAL STREET, BOSTON.
BRANCH OFFICES: 36 BEEKMAN STREET, NEW YORK. 21 ST. MARY AXE, E. C., LONDON. EDMUND ST. CHAMBERS, LIVERPOOL.

WM. J. CORBETT & CO.,
WHOLESALE DEALERS IN AND PACKERS OF
Woolen Rags and Paper Makers' Supplies,
86, 88 & 90 COVE ST., BOSTON, MASS.
WOOLEN RAGS GRADED IN COLORS AND QUALITY.
OUR SPECIALTIES: "EXCELSIOR" AND "STAR" PACKINGS.

ESTABLISHED 1855.
DARMSTADT & SCOTT,
— IMPORTERS AND PACKERS OF —
PAPER STOCK.
Offices: 257 Front Street. Packing House: 312 Water Street, New York.
☞ SPECIAL ATTENTION CALLED TO OUR OWN PACKING.

F. BREDT & CO.,
No. 194 Fulton Street, SOLE AGENTS FOR New York City, U. S. A.
JOSEPH PORRITT & SONS'
ENGLISH FELTINGS.
TRADE MARK.
ALSO IMPORTERS AND DEALERS IN
MARINE BLUE (Aniline) for News Paper Mills,
Jacketing, Roll Cloth, Double Extra Canvas, Ultramarine Blue.

GRIFFIN & LITTLE, PAPER MILL CHEMISTS,
*Office and Laboratory: 103 Milk Street, Boston.*
EXPERTS IN THE SULPHITE PROCESS AND ALL CHEMICAL MATTERS PERTAINING TO THE MANUFACTURE OF PULP AND PAPER.

TRUE & McCLELLAND,
(LATE E. A. TRUE & CO.
PACKERS AND IMPORTERS OF
Paper Stock and Wastes,
OFFICE: 64 FEDERAL STREET, BOSTON.
Foreign Packing Branches: 19 Corporation St., Manchester; 97 Park St., Liverpool.

CASTLE & GOTTHEIL,
— IMPORTERS OF —
Sulphite and Soda Pulps,
LINEN AND COTTON RAGS,
JUTE STOCKS, SIZING, &c.
140 NASSAU STREET, — NEW YORK.

A. WERTHEIM & CO., Hamburg, Germany,
EXPORTERS OF ALL GRADES OF
SULPHITE AND SODA PULPS.
SIGMUND GOLDMAN, Agent for the United States and Canada, BENNETT BUILDING, 99 NASSAU STREET, NEW YORK.

# The Paper Trade Journal.

DEVOTED EXCLUSIVELY TO

THE INTERESTS OF

**The American Paper Trade.**

**Weekly, $4.00 per Annum.**

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|---|---|
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BRANCH OFFICES:

**Western Office**—R. B. DUVALL, General Manager, 56-58 LA SALLE STREET, CHICAGO, Ill.

**Boston Office**—A. L. DELESDERNIER, General Manager, 67 FEDERAL STREET, BOSTON, Mass.

NEW YORK: SATURDAY, MAY 26, 1894.


SHALL we hear anything from the American Paper Manufacturers' Association this year, or has that organization gone into "innocuous desuetude"? Come, Mr. Barker! Tell us whether there is to be a convocation!

THE Canadian Parliament has decided to reimpose a duty of 25 per cent. on wood pulp, with the proviso that this product shall go on the free list whenever the United States shall take off the countervailing duty. We do not know that this will disturb our manufacturers to any degree and it is fairly within the lines of protection which every country ought to give to its manufactures. It is all right.

THE machine illustrated and described on the first page of this issue of THE PAPER TRADE JOURNAL is designed to furnish improved means for the manufacture of square bottomed bags from a paper bellows side fold tube. Reciprocating suction formers, aided by positively acting mechanical folders, shape the paper tube and break it into the folds necessary to form the satchel bottom.

FIVE years ago there was terrible disaster from the rains which prevailed at this period of the year. Again we are called on to tell the story of the floods; but it is not fraught with so much horror and is less burdened with disaster. With one exception, as so far reported, the paper mills throughout the district most affected by the storm appear to have incurred little loss, even if they have not altogether avoided inconvenience.

DEVELOPMENTS in the Nicaraguan muddle seem to indicate that so far as the United States are concerned matters are progressing backward with considerable rapidity. More than this, there may arise complications which shall seriously interfere with the canal project, and so put an end to an undertaking in the success of which, under American management, this country is deeply interested. There should be no dawdling hesitation in declaring our position in regard to the support of American interests in the Mosquito reservation or in Nicaragua.

PROCEEDINGS have been taken against paper mills at certain localities to prevent them from running their waste into the streams. While we do not deny that there may be reasonable objection to discharging paper mill refuse into water courses, we are convinced that in many instances—and probably in the greater number of cases—more injury is done by means from which paper mills are wholly disassociated. We have in our personal experience been cognizant of almost irreparable damage to the beds of streams, and of the driving away of fish by nuisances which paper makers are never guilty of creating. If examples are to be made it should be insisted on that an equal measure of justice shall be accorded on all sides. Paper makers ought, however, to take precautions against the pollution of streams through sources which they control, and should take pains to compel the observance of this principle by others, whether municipalities or individuals.

TO-DAY the Platte River Paper Mills, book and writing, 16 tons daily capacity, will be formally opened at Denver. A diagram of the ground plan is on another page of to-day's PAPER TRADE JOURNAL. Col. James H. Platt, the president, who is also president of the Denver Paper Mills Company, deserves great credit for his enterprise, and should meet with success. He may have to fight hard, as other manufacturers will not part with their trade in the trans-Missouri section without a struggle; but unreasonable cutting of prices would be unfortunate.

LATE advices from Hawaii indicate that the work of organizing a republic is progressing favorably. The constitutional convention will meet on May 30, and the new constitution, which appears to be modeled after that of the United States, modified to suit the exigencies of a different condition of things, will be presented for approval. Although the royalists profess to believe that they will yet receive the needed assistance from this country to enable them to regain power, it is not believed that there will be serious opposition to the republican form of government when it is finally declared. More apprehension is felt regarding the possible demands of the Japanese Government in regard to its subjects in the Sandwich Islands. The announcement of a final and peaceful solution of the difficulties which have beset the little kingdom and the establishment of a stable Government will be welcome news everywhere, and will mark the beginning of closer and more prosperous trade relations between that country and our own.

SCARCELY a business house in the country, certainly none doing an extended trade, but has had reason to complain of the bills of lading by which common carriers have sought to limit their responsibility and make life unhappy for the shipper. Any change in the form of the bill of lading is therefore certain to command attention. This subject has long been one of contention between transportation companies and the industrial and mercantile interests of the nation, but a fair and just settlement of it has not been very promising. It will therefore be good news that some progress has been made in the right direction; the thin end of the wedge has been entered; it now remains for those who are bearing the brunt of the battle to drive it home with a will. The Chicago and Grand Trunk Railway has seen a light, and now leads the way to what will be, it is hoped, a final round up of the different railroads in the interest of fair dealing with the business of the country, on which their own prosperity depends.

NOT very long ago the railways prepared a uniform bill of lading which they loaded with complex and untenable conditions for shippers, one of which relieved transportation companies absolutely from all liability for goods damaged by their employees. There were also new classifications of freights obviously advantageous to the carriers and adverse to shippers, and across the face of the document was the word "non-negotiable," printed in large letters. Intelligent men need not be told that a bill of lading cannot be made to suspend the operation of laws governing common carriers. The principal use of such a contract is as a weapon of intimidation to prevent men not well informed from pressing claims against the companies. As the chief losses of such litigation fall upon shippers, such a document is well calculated to increase timidity on their part. It is enough to say here that vigorous resistance has been made to the efforts to force the objectionable bill of lading on the business men of the country. The Interstate Commerce Commission has been appealed to for protection, and Congress has been petitioned to enact legislation which will make all future efforts of the kind unlawful.

WE are glad to note that these protests have had some effect. This is shown in the voluntary rejection of the proposed uniform bill of lading, and the preparation of a form of its own by the Chicago and Grand Trunk Railway Company, the construction of which is said to be simple and short, and the language plain, to which is added the declaration that it is "subject to carriers' liabilities under the common law in force in the various States, Territories, Provinces or foreign countries through which the goods may pass." It is altogether probable that the other trunk lines will soon follow the example thus set; the conditions and necessities of competition will compel them to do so, and thus we may reasonably believe that the end of the contention is in sight and that an era of fair dealing and good feeling is approaching. Certainly the facts in the case have fully justified the demands of the shippers. There has never been anything either in law or reason upon which transportation companies could righteously base a claim to exemption from the obligations of common carriers, and we are glad to believe that general business interests will not have to contend against such presumptuous asseverations much longer. There is ample room with abundant resources in the country to richly reward energy and industry without resorting to unlawful means and rapacious methods, or bringing into use the power of money for the accomplishment of selfish ends.

## Watermarks.

BY DANDY.

That new bag price list is "a dandy." A man who had been buying from the fellow who didn't change his list wrote and said about thus: "Your competitor has put out a new list and I want you to meet his prices. I cannot compete against his prices at the old list."

The seller smiled a very loud smile and then made out the bill according to his competitor's non-confusion-and-guaranteed-to-reduce-office-work list, and it made the amount 50 cents more in a bill of $75.

In the case of another order the new list figured up $8 more. Neither of the buyers has since been heard from, except in the way of a check for the amount according to the old list.

That's what I would call a practical demonstration.

It is always well to look at things philosophically, and to consider the silver lining to the cloud, without "crying over spilt milk." As least that is the way in which a well-known paper maker of this town acted a day or two ago. He had in his mill yard a big lot of lumber, which he bought last year, and which cost considerably more than some which he bought this year. It was rather irritating to be running on the high priced wood when the price of paper was so low; therefore when a few days ago he learned that his high priced lumber had been carried down stream by the flood he said, "Thank God, we can now use the cheap wood!"

Anent the flood it is said that one mill had so much water in its machine room that the machine tenders had to be equipped in diving suits. "Fact! See that ring?"

They are telling in Boston and about 2° of longitude further east a capital story of how a certain pulp manufacturer, who is somewhat addicted to making jokes as well as chemical fibre, thought it would be a fine thing to stop a physician hurrying by and ask him some trivial question. The laugh, however, didn't reach more than half the way round again to the pulp grinder, when one morning about 2 o'clock bedtime his bell rang violently. Pitching himself into his trousers and slippers, he hastened to open the front door. There stood the doctor with an answer to his latest query, and prepared to reply to a new string of silly questions.

E. B. Bartlett, who died in Brooklyn this week, will be remembered by paper stock importers as being the aggressive front of the company which proposed to disinfect rags by the use of super-heated steam. The proposition led to a great deal of argument, trouble and expense, and in one case to litigation, which is not yet ended. The deceased was a bright, able man, who fought hard for his side of the question, and whose pocketbook suffered severely by the collapse of the steam disinfecting scheme.

Jute butts are getting down in price, and if they keep to that line all summer and a little longer some people will be making "wood manilla" out of them, for as between them and sulphite at a price, many people prefer them.

Bagging is keeping butts company in the matter of price, and users of these stocks contemplate the decline with a great deal of happiness.

# Communications.

### Seeking Information.

NEWTON LOWER FALLS, Mass., May 23, 1894.

*Editor of The Paper Trade Journal:*

Will some of your experienced subscribers give us their views on the following questions? We have a mill with three 40 inch beaters making tissue, and desire more stuff, having water power to spare, Shall we add another beater of the same size, or a Jordan? Which will give the most stuff? Also, can the stuff be advantageously run direct from the Jordan to the machine? What would be the disadvantages, if any, of so doing? SUBSCRIBER.

### Priming Boilers.

CHESTERTOWN, Md., May 21, 1894.

*Editor of The Paper Trade Journal:*

I would like to ask Mr. Hobart, through your columns, for the best appliance to prevent our boilers from lifting or priming. Any suggestion will be thankfully received. The following data may be helpful to him in giving us a remedy. Our battery consists of three 6x16 shell boilers; each boiler has 102 4-inch flues and two 36-inch steam domes. The three front domes are connected to an 8-inch main pipe by three 6-inch pipes. The three back domes are connected to a 5-inch main which at one end of the boilers runs into the 8-inch. They will lift at times no matter how we try to prevent it. One thing against us is that these boilers are forced. We blow off twice in twenty-four hours, and have no surface blow-off. Every Saturday night they are washed out, but before the week is ended they make trouble. I should have said that the opening in the shells leading into the domes is 10x14 inches. The stay rods for the dome heads stagger across the opening in the boiler shell and the pipe outlet. Hoping that this is sufficient and explicit, a reply will have my closest attention. Respectfully, F.

## Trade Talks.

*A. D. Mohr, New York.*—The Ontario Pulp Wood Company has been incorporated under the laws of the State of New York, and it will extend the business of manufacturing pulp wood which is now being carried on on the line of the Canadian Pacific Railroad. The company proposes to purchase lands other than are now connected with the plant. We take the wood, bark it and cut it into lengths suitable for use by the pulp maker. We have been in the business some time and are now under contract to furnish such wood pulp to the Ontario Paper Company, of Watertown, N. Y.

### Changes, Removals and New Firms.

Chas. J. Robinson, publisher, Manistee, Mich., has sold out.

W. A. & M. W. Mikesall, publishers, Atwood, Kan., have sold out.

James Vandersluis, publisher, Grand Rapids, Mich., has sold out.

Rowland & Son, printers, Chicago, Ill., have dissolved partnership.

Morley & Hayden, dealers in stationery, &c., St. John, N. B., have sold out.

Thos. D. Kellinger, printer, Pana, Ill., has been succeeded by Merry & Burch.

Livingston & Burrows, publishers, Kankakee, Ill., have been succeeded by H. J. Dunlap.

Ferguson & Becket, dealers in wall paper, &c., Hastings, Ia., have dissolved partnership.

The Reform Publishing Company, Newberry, S. C., has been chartered to publish a newspaper.

W. J. Bonestell has opened a stationery store next door to the Randall Bank, at Eureka, Cal.

A. Brewster, dealer in wall paper, Pine Bluff, Ark., has been succeeded by A. Brewster & Son.

W. W. Walker, job printer, London, Ont., is removing his business to Kingston, same Province.

The Consolidated Wall Paper Company, New York, has removed from 15 West Forty-second street to the Seymour Building, corner Fifth avenue and Forty-second street.

H. Holmes, Rat Portage, Ont., has started in the printing and publishing business.

G. H. Dickson's Son & Co., stationers, New York city, have been succeeded by Dickson & Laidlaw.

The *Canadian Furniture and Upholstery Journal* is a new trade paper published in Toronto, Ont.

*Saturday Night* is the name of a proposed new weekly newspaper to be published in Halifax, N. B.

A syndicate of citizens has purchased the *Courier-Informant*, Bartow, Fla., and will continue its publication.

A charter has been applied for by the Oil Springs *Chronicle* Printing and Publishing Company, Oil Springs, Ont. Capital stock, $1,500.

D. W. Rising, North Adams, Mass., has sold his paper box factory to E. A. McMillin, publisher of the *Hoosac Valley News*, and F. S. Rice.

An order to wind up the business has been granted to the Williamson Book Company (Limited), bookseller, stationer and publisher, Toronto, Ont.

George Kroh, stationer, Stockton, Cal., has associated his son in business with himself, and hereafter the firm name will be George Kroh & Son.

Maxwell, Johnson & Co. and the Webber Printing Company, of Toronto, Ont., have consolidated under the firm name of the Webber-Johnson Printing Company.

The *Pathfinder* Publishing Company, Washington, D. C., has been incorporated by Edwin S. Potter, George D. Mitchell and B. Bristow Adams to do a publishing business. Capital stock, $10,000.

The *Carroll Record* Printing and Publishing Company, Taneytown, Md., has been organized to publish a newspaper. W. J. Roberts is president, G. T. Motter vice-president, and H. M, Clabaugh secretary.

The Sheffield Paper Company, has been incorporated with a capital of $300,000. M. S. Morgan is president, and W. R. Sheffield secretary, and the company on June 1 will begin to operate the mill at Saugerties, N. Y., formerly owned by the Sheffield Manufacturing Company.

The Polk County Printing Works, at Bartow, Fla., have been incorporated, with E. W. Coddington as president, F. W. Inman vice-president, and B. B. Tatum secretary-treasurer. The organization will publish the *Courier-Informant*, operate printing works, &c. Capital stock, $5,000.

The Ontario Pulp Wood Company, of New York, has been incorporated to manufacture pulp wood in the provinces of Ontario and Quebec; capital, $50,000, and directors, A. T. Mohr, of Morristown; A. D. Mohr, L. S. Carter and F. W. Jacobs, of New York city, and A. A. Mohr, of Brooklyn.

E. C. Hargrave & Co., of Russia, N. Y., has been incorporated to manufacture and sell lumber and paper makers' supplies. The capital stock of the company is $400,000. The directors are Edward C. Hargraves, of Bay City, Mich.; Welton B. Ostrander and Charles G. Butts, of Hinkley, N. Y.

Swinton & Reynolds, dealers in paper, stationery and books, Saginaw, Mich., have been succeeded by the Swinton, Reynolds & Cooper Company, incorporated. The capital stock of the new company is $35,000, and the officers of the corporation are W. T. Cooper, president; G. A. Reynolds, vice-president, and D. Swinton, secretary and treasurer.

### Failures.

O'Brien Brothers & Co., Lambertville, N. J., have secured the extension asked for from their creditors.

The sheriff has sold out the effects of the Stuyvesant Press at 154 West Twenty-seventh street, New York, for $900.

The account of Alfred Miller, as assignee of the American Wood Paper Company, has been filed, and the Court of Common Pleas, Philadelphia, has appointed Charles W. Mann as auditor, who will hold sittings at No. 426 Drexel Building, in the city of Philadelphia, beginning on Tuesday, May 29, for the purpose of receiving claims and taking such testimony as may be necessary in the matter. Creditors have been requested to send itemized statements of their accounts to the assignee, who will have the same duly presented to the auditor.

### In Town.

L. M. Howland, Sandy Hill, N. J.; T. L. Waller, Brownville, N. Y.; F. W. Spicer, Dexter, N. Y.; C. G. Sherman, Watertown, N. Y.; W. H. Eaton, Lee, Mass.; C. S. Garrett, Philadelphia, Pa.; W. E. Wagg and C. H. Dobilinski, Lambertville, N. J.; Ed. McCready, Catawissa, Pa.; H. J. Chisholm, Portland, Me.

### Mortgages, Etc.

[In the appended list R. signifies a renewal of a pre-existing mortgage; B. S., bill of sale; T. D., trust deed, and Real, a mortgage on real estate.]

EASTERN STATES.

| *Mortgagor.* | *Amount.* |
|---|---|
| H. A. Brown, Springfield, Mass. | $2.000 |

MIDDLE STATES.

| | |
|---|---|
| The *Times* Printing and Publishing Company, Rochester, N. Y. (B. S) | 1 |

WESTERN STATES.

| | |
|---|---|
| Jolly Brothers, Denver, Idaho (B. S.) | 800 |
| M. Townsend, Moscow, Idaho (B. S.) | 150 |
| Lane Tissue Paper Company, Elkhart, Ind. | — |
| N. A. Randall, Indianapolis, Ind. | 180 |
| Williams & Williams, Eldorado, Ill | 200 |
| Charles A. Lisle, Clarinda, Ia. (Real) | 2,500 |
| Nonpareil Printing and Publishing Company, Council Bluffs, Ia. | 2,250 |
| John Burnsdon, Des Moines, Ia. | 250 |
| E. H. Dickinson, Dubuque, Ia. | 1,027 |
| Jack Gitzy, Manilla, Ia. | 230 |
| George H. Otis, Monona, Ia. (B. S.) | 130 |
| J. Lister & Son (*Sentinel*) Onawa, Ia. | 375 |
| John H. Funk, Richland, Ia. | 500 |
| A. K. Wilkins, Ute, Ia. | 450 |
| Asa Lea, Columbus, Kan. | 378 |
| M. P. Barnes (Barnes & Newcomb), Wichita, Kan. (Real) | 12,000 |
| Edward A. Krall, Milwaukee, Wis. | 100 |

SOUTHERN STATES.

| | |
|---|---|
| P. D. Etue, Kansas City, Mo. | 516 |
| P. D. Etue, Kansas City, Mo. (B. S.) | 900 |

LIENS DISCHARGED.

| | |
|---|---|
| Ida M. Poole, Boston, Mass. | 2,050 |

### Fires.

The office of the *Reporter*, Oconto, Wis., was burned out on May 22.

The Union Paper Box Company, Fond du Lac, Wis., lost $5,000 by fire on May 14.

The offices of Barr Brothers, printers, and the *Morning Times*, Selma, Ala., were burned out May 14.

Fire broke out in E. Waters & Sons, paper boat factory, Lansingburg, N. Y., on May 17. The greatest damage was from water.

The wood pulp mill of the Belden's Falls Pulp Company, 4 miles north of Middlebury, Vt., took fire about 8 o'clock, Monday evening, May 2, on the roof, probably from the stack, and the mill was entirely destroyed. A large amount of logs recently piled between it and a large marble mill took fire, endangering the marble mill. Two million feet of logs were destroyed. The loss on the buildings is about $33,000.

### Personals.

W. W. White and wife, of Dayton, Ohio, have been on a week's visit to New York.

Chr. Christophersen, of Christiania, Norway, who has been on an extended visit to this country, will sail for home on Tuesday next on the Havel.

### General Notes.

W. H. Knickerbocker is in charge of the property of the J. C. Lane Paper Manufacturing Company, Elkhart, Ind., as receiver. The liabilities are estimated at $48,000, with assets of $125,000.

By the invention of an Italian seismologist an earthquake shock is made to light an electric lamp for a quarter of a second, causing the face of a chronometer to be photographed, thus registering the precise time of the shock.

English electricians are trying to apply electricity to agriculture, especially for the operation of large plows. Should the experiments succeed they intend to introduce such electric plows in districts where the use of steam is inconvenient.

The Crocker Manufacturing Company, Holyoke, Mass., proposes to make during the week or ten days following May 28 its specialties in canary, fawn, robin's egg blue, Nile green, blue granite, light blue, light buff and coffee colored papers.

It is stated that the new Manchester Steam Navigation Company will place upon the Manchester Ship Canal, when it is formally opened, shipping aggregating 400,000 tons of traffic yearly, and that the traffic of the United States, India and the Mediterranean will increase the canal company's revenue by $600,000 yearly.

### Telling Iron from Steel.

The simplest way is to pour on the metal to be tested a drop of nitric acid; let it act for one minute, then rinse with water. On iron the acid will cause a grayish white, on steel a black stain. Steel may be distinguished further from either cast or wrought iron by the closeness of the grain, its toughness, and its having that peculiar property called temper, which is the power of hardening when suddenly cooled after being red hot.

If a bar of steel be made of a bright red heat, and is then suddenly plunged into cold water, it will be found to have become harder than any other metal—so hard, indeed, that it will scratch glass, and is as brittle and readily broken as flint.

If a piece of hard, bright steel is held for a moment in the hollow of a clear fire, a pale straw color appears on the surface, its hardness is slightly lessened, and it is fit for razors, surgical instruments, &c.; if held in the fire a moment or two longer it becomes of a bright golden yellow, and is fit for penknives and other cutting instruments; held longer still, it becomes bright blue and is fit for watch springs, swords and other purposes requiring great elasticity; if the heat be carried still further, a brown tinge is seen, and it is now rather soft, but still greatly harder than iron, and still elastic. Saws, coach springs and other articles are made from steel at this temper. —*Mechanical News.*

## Market Review.

OFFICE OF THE PAPER TRADE JOURNAL, FRIDAY, May 25, 1894.

THE MONEY MARKET.—Most of the moving shares closed at lower figures, the feature being the decline of New York Central. The call loan market was without quotable change, continuing easy at 1 per cent. at the Stock Exchange, with an occasional better loan in the outside market. Few banks made any effort to place lines, even at 1 per cent., most of the business done representing bankers' balances. There is nothing in the character of the current speculation to make the loan market of any special interest. Time loans were inactive, the chief pressure of funds being for short terms, and the best demand for long contracts. Any marketable security is readily placed as collateral. Current rates are 1½@2 per cent. for short loans, 2@2½ per cent. for four months, and 3 per cent. to the end of the year. Commercial paper continues in good demand, but buyers were not so anxious to make large engagements at the current low basis of rates. Quotations are: 2½ per cent. for very choice indorsements; 2¾@3 per cent. for sixty to ninety day indorsed bills receivable; 3@3½ per cent. for four months' commission house names; 3½@4 per cent. for good four to six months' single names, and 4 @ 6 per cent. for those not so well known. The market for foreign exchange was steady on a small volume of business, the chief supply of bills being those drawn against foreign purchases of stocks. The market, however, held at the gold export point, and in the absence of an unexpectedly large supply of security bills specie shipments to-morrow will reach an important amount. Posted rates were $4.88½ for sixty days and $4.90 for sight. Actual rates were $4.87½@4.87¾ for sixty days, and $4.88¼@4.89¼ for sight.

THE PAPER TRADE.—The floods in the Pennsylvania districts caused considerable trouble to paper manufacturers during the past week. Many machines have been stopped by high water, and in some instances buildings have been wrecked and property swept away. In the way of business there is little now to report. The volume of business does not grow larger, and one hears as much complaint as ever. In the News line the big mills report that they are busy, but some of the smaller mills, or mills which are fighting for a place, complain that orders are not plentiful and that prices are low. The Manufacturers Paper Company is reported to have closed a five years' contract with a Chicago paper for a supply of Montague or equality paper, the price for the first year being reported at 3c.

JUTE BUTTS.—The market is very quiet. Spot is nominal at 1¼c., but for shipment we note sale 1,000 bs. at 1 5-16c., while Calcutta is now quoted at 1¼c.

WOOD PULP.—The market is quiet on home account, and prices are as before. The bark "Fram" sailed from Bangor for Fleetwood on Wednesday with about 1,150 tons wet weight of ground wood

WOOD FIBRE.—There is a movement of small lots and prices are very low. Domestic Soda is quoted at 2¼@3¼c. for Bleached. Domestic Sulphite is quoted at 2¼@2½c., as to quality, for Unbleached, and 3½c. for Bleached. Foreign grades are quoted as follows: Unbleached Pine, soda process, 2.60@2.75c.; Bleached, same process, 3½@3.90c.; Unbleached, sulphite process, 2.50@3.25c.; Bleached, do., 4@4½c.; Bleached Straw Pulp, 4@4½c. Imports of Chemical Fibre this week aggregated 196 tons, being 15 tons from Antwerp, 171 tons from Copenhagen, and 10 tons from Stettin.

FOREIGN RAGS AND PAPER STOCK.—The market is quiet and only small lots are changing hands. Imports for the week aggregated 3,716 bales and 196 tons, being 471 bs. rags, 264 bs. papers, 196 tons chemical fibre and 2,981 lbs. manillas. Ports of shipment and quantities are as follows: Antwerp, 15 tons chemical fibre, 338 bs. manillas; Bordeaux, 318 bs. rags; Copenhagen, 171 tons chemical fibre, 152 bs. manillas; Glasgow, 50 bs. rags, 110 bs. manillas; Hamburg, 28 bs. rags, 135 bs. manillas; Hamilton, 42 bs. manillas; Hong Kong, 43 bs. rags; Liverpool, 23 bs. rags, 567 bs. manillas; London, 264 bs. papers, 629 bs. manillas; Rotterdam, 716 bs. manillas; Stettin, 10 tons chemical fibre and 292 bs. manillas.

DOMESTIC RAGS.—The market is very quiet and prices rule as before, say, 3¼@3½c. for No. 1 City Whites; 2½@2¼c. for Soiled Whites, 90@1½c for No. 2's.

BAGGING, &c.—The market for Gunny is quiet and weak. Quotations range from 1.07½@1.10c., but there is very little business doing. We note sales prime Mixed Bagging at 90c., and 10 tons new Jute Cuttings at 1¾c. Manilla imports for the week aggregated 2,981 bales, being 338 bs. from Antwerp, 152 bs. from Copenhagen, 110 bs. from Glasgow, 135 bs. from Hamburg, 42 bs. from Hamilton, 567 bs. from Liverpool, 629 bs. from London, 716 bs. from Rotterdam and 292 bs. from Stettin.

OLD PAPERS.—There continues to be a movement of small lots. We quote: No. 1 Hard White Shavings, 2¾c.; No. 1 Soft White do., strictly free from wood, 2.15c.; Soft White do., ordinary, 1⅞@2c.; Old Ledgers, 2.10c.; Solid Printed Books, 1¼c.; Mixed Shavings, No. 1, 1.20@1.25c.; Mixed Shavings, No. 2, ¾@1c.; Extra No. 1 Manillas, 1.15c.; No. 1 Manillas, ordinary, .80c.; No. 2 Manillas, .60c.; Light Book Stock, 1½c.; Folded News, .40c.; Mixed Papers, .40c.; Commons, 25@30c.; Straw Clippings, .45@.50c.; Binders' do., .50c.

STRAW.—Trade is of moderate volume and the market is about steady. We quote: No. 1 Long Rye at 65c.; No. 2 Long Rye at 50@60c.; Short Rye at 45@50c.; Wheat at 40@50c.; Oat at 45@55c.

ROSINS.—Rosins are firm. We quote: Common to Good Strained, $1.50@1.55; E, $1.65@1.70; F, $1.85@1.90; G, $2.05; H, $2.25; I, $2.55@2 60; K, $2.80; M, $3.15@3.20; N, $3.25@3.30; W. G., $3.40@3.45.

CHEMICALS.—The market for paper makers' chemicals continues dull. J. P. Brunner & Co. in their circular under date of Liverpool, May 8, say: "Business in heavy chemicals is still very disappointing and buyers show no disposition to operate except from hand to mouth. Soda ash in retail demand, and for Leblanc makes prices vary according to export market, the nominal spot range being about as follows: Caustic Ash, 48 per cent., £3 15s.@£4 per ton; 57@58 per cent., £4 20s.@£4 15s. per ton; Carbonated Ash, 48 per cent., £3 5s @ £3 15s. per ton; 58 per cent., £3 15s.@£4 per ton, all net cash. Ammonia Ash, 58 per cent., in moderate request at £3 10s.@£3 1s. per ton, net cash, for tierces, and 5s. less for bags. Soda Crystals are weak at £2 13s. 9d.@£2 15s. per ton, less 5 per cent. Caustic Soda flat, and for some markets prices have been reduced. Quotations vary according to destination, the nearest spot range being as follows: 60 per cent., £7 10s.@£8 5s. per ton; 70 per cent. £8 10s.@£9 4s. per ton; 74 per cent., £9 10s.@£10 5s. per ton; 76 per cent., £10 10s.@£11 5s. per ton, net cash. For parcels under 10 tons 5s. per ton extra is charged. Bleaching Powder is the only article on the list that shows any signs of animation, and prices are steady at £7 10s up to £8 5s. per ton net cash for hardwood packages according to export market." Bleaching Powder is in very limited supply on spot, and buyers who needed goods for prompt delivery have had to look sharp to get supplies. Sal Soda is in usual jobbing demand. Caustic Soda is in very good demand and Alkali is quiet. During the week there have been sales of 40 casks Bleach at 2¼c.; 25 tons Soda Ash at 1½c.; 50 tons 58 per cent. Alkali at 1.15c.; 50 drums Caustic at 2¼@2.80c.

CHINA CLAY.—The demand is very sluggish, potters being in good supply, drawing on contracts previously placed. Arrivals come forward steadily, although shipments are being carefully regulated to guard against undue accumulations. Values are offered at $13@18 for goods from store, ex ship being quoted as low as $12@17.50 as to quantity and quality.

TWINES.—Trade is slow. We quote: Sisal Hay Rope, 6¼c.; Sisal Lath Yarn, fine, 9¼c., and medium, 9¼c.; Jute Lines, 6½c.; Jute Ready, 6c.; New Zealand Hay Rope, 6¼@7¼c.; New Zealand Lath Yarn, fine, 9¼c.; medium, 8¾c. Twines—Hemp, 4½ and 6 B Russia, 12c.; 4½ and 6 A American, 12c.; 4½ and 6 D Jute, 9½c.; 4½ and 6 L Jute, 9c.; Hemp Ball, 18 B C, 17c.; 18 C, 15c.; Russian Hemp Hay Rope, 9c.

COAL.—Supplies of soft coal are yet limited, but it is likely that work will soon be resumed in the mining districts. The market for Anthracite is quiet at Chicago, where soft coal can be had if the consumer is willing to pay what is asked for it. There is no movement of Anthracite in the Northwest, though an occasional inquiry shows that there is an inclination to do business if suitable prices can be agreed upon. Trade has been fairly good at Philadelphia, due entirely to the scarcity of soft coal. At the East there is a disposition to pick up bargains offering in Anthracite; soft coal has not been received in any quantity, but the market is easy.


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## PRICES CURRENT.

### NEW YORK MARKET.

**Paper Market,**
DEALERS' SELLING PRICES.

| | | | |
|---|---|---|---|
| Ledger and Record | $0.18 | @ | $0.24 |
| Flat Caps, superfines | 14 | @ | 16 |
| Flat Caps, fines | 11½ | @ | 13 |
| Flat Caps, engine sized | 7½ | @ | 9 |
| Blotting, American | 8 | @ | 15 |
| Blotting, English | 17 | @ | .... |
| Book, super sized and calendered | 6 | @ | 9 |
| Book, super sized and tinted | 6 | @ | 7½ |
| Book, extra machine finish | 5½ | @ | 6 |
| Book, machine finish, low grade | 5 | @ | 5½ |
| News, No. 1 | 4 | @ | 4½ |
| News, rag and wood | 3 | @ | 3½ |
| Poster | 5 | @ | 7 |
| Hanging, superfine, No. 1 | 8 | @ | 10 |
| Hanging, superfine, No. 2 | 6 | @ | 8 |
| Hanging, machine satin | 4 | @ | 4½ |
| Hanging, white blank, No. 1 | 4 | @ | 4½ |
| Hanging, curtain | 3½ | @ | 4 |
| Hanging, brown | 2½ | @ | 3 |
| Colored papers, double mediums | 6½ | @ | 8 |
| Colored papers, glazed medium | 7½ | @ | 8½ |
| Colored papers, tobacco | 8½ | @ | 9½ |
| Colored papers, tissues, 20×30, ℔ ream | 1.10 | @ | 1.35 |
| Tissues, black, 20×30, ℔ ream | 1.40 | @ | 1.50 |
| White tissue, 20×30, ℔ ream | 85 | @ | 1.00 |
| White tissue, 24×36, ℔ ream | 1.30 | @ | 1.50 |
| Manillas, Flour sack, cream | 10½ | @ | .... |
| Manillas, Flour sack, drab | 9½ | @ | 11 |
| Manillas, Rope, unbleached No. 1 | 9½ | @ | 11 |
| Manillas, Rope, unbleached No. 2 | 7½ | @ | 9 |
| Manillas, No. 1, light weight | 6½ | @ | 6¾ |
| Manillas, No. 1, heavy weight | 6¼ | @ | 6½ |
| Manillas, No. 2 | 5 | @ | 6 |
| Manillas, Bogus | 2½ | @ | 3½ |
| Wrapping Parchment | 16 | @ | 90 |
| Tissue Manillas, full count, weight and size, 24×36, other sizes in proportion | 73 | @ | 80 |
| Hardware, light colored, No. 1 | 9 | @ | 10 |
| Hardware, No. 1, glazed, tarred | 7 | @ | 8 |
| Hardware, No. 2, glazed | 4½ | @ | 5 |
| Binders' Boards, ℔ ton, No. 1 | 70.00 | @ | 90.00 |
| Binders' Boards, ℔ ton, No. 2 | 40.00 | @ | 50.00 |
| Strawboards, air dried, No. 1, ℔ ton | 47.50 | @ | .... |
| Strawboards, steam dried, No. 1, ℔ ton f. o. b. mill | .... | @ | 24.00 |
| Straw Wrapping, basis, 15×20, 15½ lbs., 20 sheets— | | | |
| 36×40, from 38 to 42 lbs. ℔ rm | 85 | @ | .... |
| 30×40, from 30 to 34 lbs. ℔ rm | .... | @ | 72 |
| 24×36, from 24 to 26 lbs. ℔ rm | .... | @ | 60 |
| 22×32, from 24 to 26 lbs. ℔ rm | 56 | @ | .... |
| 20×30, 21 lbs., ℔ rm | .... | @ | 44 |
| 20×30, from 14 to 17 lbs. ℔ rm | 36 | @ | .... |
| 16×22, from 12 to 13 lbs. ℔ rm | 28 | @ | .... |
| 18×28 | .... | @ | 32 |
| 15×20, 10 lbs. ℔ rm | 17 | @ | 19 |
| 15×20, from 7 to 8½ lbs. ℔ rm | 17 | @ | 19 |
| 14×18 | .... | @ | 15 |
| 12×16 | .... | @ | 13 |
| 11×15 | .... | @ | 11 |
| Straw Wrapping, ℔ lb., heavy weight | 1.75 | @ | 1.80 |
| Straw Wrapping, ℔ lb., light weight | 1½ | @ | .... |
| Cigarette, Straw Tissue, per case of 100 boxes, 50 books to the box, 200 sheets to the book | 21.00 | @ | 30.00 |
| Tea Papers, 16 sheet quires— | | | |
| 12×18 | 18 | @ | 20 |
| 14×20 | 22 | @ | .... |
| Card Middles, ground wood | 5½ | @ | 6¼ |
| Card Middles, long fibre wood | 8½ | @ | 9 |
| Card Middles, rag and wood | 6 | @ | 9 |
| Pulp Lined Boards, single manilla, No. 100 and heavier | 42.50 | @ | .... |
| Pulp Lined Boards, double manilla, No. 100 and heavier | 47.50 | @ | .... |

**Woolen Rags.**

| | | | |
|---|---|---|---|
| Comforter Stock | 8 | @ | 9 |
| White Woolens | 9 | @ | 10 |
| Blue Gray Stockings | 7 | @ | 8 |
| White Stockings | 15 | @ | 16 |
| Blue Flannels | 6 | @ | 7 |
| Reds, old | 7½ | @ | 8 |
| Reds, new Shirt Clippings | 20 | @ | 21 |
| Mixed Softs, free of Carpets | 7½ | @ | 8 |
| Seamed Cloth | 3½ | @ | 4 |
| Skirted Cloth | 2½ | @ | 2 |
| New Cloth Clips | 9 | @ | 11 |
| New Satinets, clean stock | 1½ | @ | 1½ |
| Satinets, old | 65 | @ | 75 |
| Seams | 1 | @ | 1¼ |
| Delaines, stripped for extract | 2½ | @ | 3½ |
| Blankets, Woolen | 2½ | @ | 2½ |
| Wool Carpets | 3 | @ | .... |
| White Linseys | 3 | @ | 3½ |
| Mixed Linseys | 1½ | @ | .... |

**Rags, Rope and Bagging.**

| | | | |
|---|---|---|---|
| White Shirt Cuttings, No. 1 | 5½ | @ | 6 |
| Mill Assorted Whites | 3½ | @ | 3¾ |
| Unbleached Muslins | 4 | @ | 4¼ |
| City Whites, No. 1 | 3¼ | @ | .... |
| New Seconds, light | 2¼ | @ | .... |
| New Seconds, dark | 1½ | @ | 2 |
| No. 2 Whites | ½ | @ | 1.15 |
| Cotton Canvas, No. 1 | 3½ | @ | .... |
| Linen Canvas, No. 1 | .... | @ | 3 |
| Country Mixed, free of Woolens | 60 | @ | 75 |
| Seconds (City) | 30 | @ | 50 |
| Colors, ℔ 100 lbs | 30 | @ | 40 |
| Manilla Rope | 2 | @ | 2½ |
| Manilla Rope, tarred | .... | @ | .... |
| Gunny Bagging, No. 1 | .... | @ | 1½ |
| Mixed Bagging, No. 1 | 80 | @ | 90 |
| Burlap Bagging, No. 1 | .... | @ | 1½ |
| Kentucky Hemp Bagging | .... | @ | .... |
| Tar Shakings | 1 | @ | .... |
| Hemp Twine Stock | 2½ | @ | .... |
| Jute Waste | ½ | @ | 1 |

**Shavings and Old Paper.**

| | | | |
|---|---|---|---|
| White Collar Cuttings | 3 | @ | .... |
| White Envelope Cuttings | 3½ | @ | .... |
| Hard White Shavings, No. 1 | 2½ | @ | 3 |
| Soft White Shavings, strictly free from wood | 2.15 | @ | .... |
| Soft White Shavings, ordinary | 1¾ | @ | 2 |
| Mixed Shavings, part white | 1 | @ | 1½ |
| Ledger and Writing | 2 | @ | 2.10 |
| Solid Stock | .... | @ | 1½ |
| Book Stock, No. 1 light | .... | @ | 1½ |
| Old Newspapers | 40 | @ | .... |
| Manillas No. 1 | .... | @ | 1.15 |
| Manillas No. 2 | 80 | @ | .... |
| Mixed Manillas | 60 | @ | .... |
| Hardwares, No. 1 | 65 | @ | .... |
| Mixed Papers | 40 | @ | .... |
| Commons | 25 | @ | 30 |
| Binders' Board Cuttings | 50 | @ | .... |
| Strawboard Cuttings | 45 | @ | 50 |

**English Old Papers and Shavings.**

| | | | |
|---|---|---|---|
| Hard Shavings, No. 1 | 2 | @ | .... |
| Soft Shavings, No. 1 | 2¼ | @ | 2¾ |
| White and Colored Shavings, No. 1 | 1¼ | @ | 1½ |
| White and Colored Shavings, No. 2 | 1 | @ | 1¼ |
| Cream Post Shavings | 2½ | @ | .... |
| Paper Collar Cuttings | .... | @ | 2 |
| Briefs and Letters | 1½ | @ | 1¾ |
| Books and Pamphlets | 1.10 | @ | .... |
| Old Newspapers | .... | @ | .... |
| Broken News and Letters | ⅞ | @ | 1 |
| Old Blank Books | 2¼ | @ | 2½ |
| White and Buff Railway Sheets | 1¼ | @ | .... |

**Japanese Rags.**

| | | | |
|---|---|---|---|
| Blues, Hiogo | 1.45 | @ | .... |

**Chemicals, Coloring Materials, &c.**

| | | | |
|---|---|---|---|
| Alkali, 58 ℔ cent | 1.55 | @ | 1.75 |
| Alum, lump | 1.65 | @ | .... |
| Alum, ground | 1.75 | @ | .... |
| Alum, Keystone | 1¾ | @ | ¼ |
| Alum, Diamond | .... | @ | 2½ |
| Alum, pearl | 2¾ | @ | 2¾ |
| Alum, porous | 2¾ | @ | 2½ |
| Alum, Merrimac porous | 2 | @ | .... |
| Aluminous Cake | .... | @ | 1¼ |
| Anti-Chlorine | .... | @ | 2¼ |
| Bichromate Potash, American | .... | @ | 10 |
| Bleaching Powders, spot | 2¼ | @ | .... |
| Cambridge Ochre | 11.25 | @ | .... |
| Caustic Soda, 60 ℔ cent | 2.75 | @ | 2.80 |
| Clay, China, English, ℔ ton | 12.50 | @ | 17.00 |
| Clay, China, "Star" | 12.50 | @ | .... |
| Clay, China, "Keystone" | 10.75 | @ | .... |
| Clay, South Carolina, ℔ ton | 9.50 | @ | 10.00 |
| Clay, Terra Alba, French, ℔ cwt | 1.00 | @ | 1.12½ |
| Clay, Terra Alba, American, No. 1 | 95 | @ | 1.00 |
| Corn Starch | 3 | @ | 3¼ |
| Copperas, American | .... | @ | 80 |
| Extract Logwood | 9½ | @ | .... |
| Mineral Pulp | 10.25 | @ | .... |
| Orange Mineral | .... | @ | 9½ |
| Potato Starch | 4½ | @ | 4¾ |
| Prussian Blue, dry | 90 | @ | 95 |
| Prussiate Potash, American | .... | @ | 34½ |
| Rosins, common to good strained, ℔ bbl | 1.50 | @ | 1.55 |
| Rosins, E, ℔ bbl | 1.65 | @ | 1.70 |
| Rosins, F, ℔ bbl | 1.85 | @ | 1.90 |
| Rosins, G, ℔ bbl | .... | @ | 2.05 |
| Rosins, H, ℔ bbl | 2.25 | @ | .... |
| Rosins, I, ℔ bbl | 2.55 | @ | 2.60 |
| Rosins, K, ℔ bbl | 2.80 | @ | .... |
| Rosins, M, ℔ bbl | 3.15 | @ | 3.20 |
| Rosins, N, ℔ bbl | 3.25 | @ | 3.30 |
| Rosins, W G, ℔ bbl | 3.40 | @ | 3.45 |
| Sal Soda | 1.10 | @ | .... |
| Soda Ash Caustic, 48 ℔ cent | 1.60 | @ | 1.65 |
| Soda Ash, carbonated, 48 ℔ cent | 1.67½ | @ | 1.70 |
| Soluble Blue | 40 | @ | 55 |
| Spanish Brown | ½ | @ | 1 |
| Sugar Lead, white | 12 | @ | .... |
| Sugar Lead, brown | 7 | @ | .... |
| Sulphate of Alumina | .... | @ | 2¼ |
| Sulphuric Acid, 66 ℔ cent | 1 | @ | 1¾ |
| Ultramarine, blue | 14 | @ | 17½ |
| Venetian Red | 1 | @ | 1½ |
| Vitriol, blue | 5½ | @ | 5¾ |
| Yellow Ochre Rochelle | 1.85 | @ | 1.50 |

### BOSTON MARKET.

**Paper Stock.**

| | | | |
|---|---|---|---|
| White Rags, No. 1 | 4 | @ | .... |
| No. 2 Whites | 3 | @ | 3¼ |
| Common Seconds | 2 | @ | 2¾ |
| Thirds and Blues | 1 | @ | 1.30 |
| Southern Mixed Rags | 80 | @ | 1 |
| Colors, country | ½ | @ | ¾ |
| Colors, city | 25 | @ | 30 |
| New Calicoes, light | 2 | @ | 2½ |
| New Calicoes, dark | 1½ | @ | 1½ |
| Shirt Cuttings, best | 4½ | @ | 5 |
| Shirt Cuttings, good | 4 | @ | 4¼ |
| Shirt Cuttings, unbleached | 4 | @ | 4¼ |
| Shirt Cuttings, unbleached No. 2 | .... | @ | 3 |
| Shirt Cuttings, cheviots | 3 | @ | 3¼ |
| Overall Cuttings, blue | .... | @ | 3 |
| Overall Cuttings, brown | 2 | @ | 2½ |
| Shoe Rags, bleached | 3½ | @ | 4 |
| Shoe Rags, unbleached | 3½ | @ | 3 |
| Shoe Rags, brown | 3 | @ | .... |
| Cotton Flannels, bleached | 3½ | @ | 4 |
| Cotton Flannels, unbleached | 3½ | @ | .... |
| Corset Rags, drab | 3½ | @ | .... |
| Corset Rags, white | 4 | @ | .... |
| Tailors' Seconds | 1¼ | @ | 1½ |
| Tailors' Colors | 25 | @ | .... |
| Cotton Canvas | .... | @ | 3 |
| Cotton Canvas, No. 2 | .... | @ | 1½ |
| Linen Canvas | 1½ | @ | 2 |
| New Canvas Cutting | 4 | @ | 4½ |
| Insole Canvas | 3 | @ | 3½ |
| Print Papers, best | 35 | @ | 40 |
| Print Papers, ordinary | 30 | @ | 35 |
| Folded News | 35 | @ | 40 |
| Old Waste Papers | 15 | @ | 20 |
| Manilla Paper, No. 1 | 1.30 | @ | 1.35 |
| Manilla Paper, good mixed | 90 | @ | .... |
| Manilla Paper, blues | 75 | @ | .... |
| Mixed Book Stock | 1 | @ | .... |
| Books and Pamphlets | 1½ | @ | 1¾ |
| Book Stock, light | 1½ | @ | 1 |
| Ledgers and Letters | 1¾ | @ | 2¼ |
| Soft Book Shavings | 1½ | @ | 2 |
| Hard White Book Shavings | 2½ | @ | 2¾ |
| Leather Board Chips | 75 | @ | 80 |
| Straw Chips | 45 | @ | 50 |
| Shivey Bagging | 1½ | @ | .... |
| No. 1 Factory Bagging | 1 | @ | 1¼ |
| Burlap Bagging | 85 | @ | 1 |
| Burlap Bagging, large pieces | 85 | @ | 1¼ |
| Kentucky Bagging | 1½ | @ | 2 |
| Mixed Bagging | ½ | @ | .... |
| No. 2 Bagging | ½ | @ | ⅝ |
| Shakings, soft | ½ | @ | .... |
| Tarred Shakings | 1 | @ | 1¼ |
| Standing Rigging | 3 | @ | .... |
| Standing Rigging, foreign | 2½ | @ | .... |
| Bolt Rope | 3 | @ | .... |
| Oakum Junk, No. 2 | 1½ | @ | 1⅝ |
| Tarred Paper Junk | 1.15 | @ | 1.20 |
| Tarred Paper Junk, inferior | ⅞ | @ | .... |
| Manilla Rope | 2 | @ | 2.15 |
| Tarred Manilla | 1½ | @ | .... |
| Hemp Strings | 1¾ | @ | 2 |
| Sisal Strings | 80 | @ | 1 |
| Wool Strings | 90 | @ | 1.10 |
| Flax Tow | ½ | @ | 1 |
| Flax Waste | ½ | @ | 1 |

**New Papers.**

| | | | |
|---|---|---|---|
| Superfine Book | 6 | @ | 7 |
| Fine Book | 5½ | @ | 6 |
| News, rag and wood | 3 | @ | .... |
| Manilla, Cream Rope | 9½ | @ | 10 |
| Manilla, No. 1, Rope | 7½ | @ | 8½ |
| Manilla, Extra Jute | 5½ | @ | 6 |
| Manilla, Jute and Gunny | 5½ | @ | 6 |
| Manilla, No. 2 | 4 | @ | 4½ |
| Manilla, Bogus | 2 | @ | 3 |
| Hardware, No. 1, tarred | 7½ | @ | 8½ |
| Hardware, No. 2 | 6½ | @ | 7 |
| Hardware, red | 4½ | @ | 5½ |
| Strawboards, air dried, ℔ ton | 37½ | @ | 45.00 |
| Strawboards, steam dried, ℔ ton | 30.00 | @ | 35.00 |
| Straw Wrapping, heavy | 1.90 | @ | 2¼ |
| Straw Wrapping, light | 2¼ | @ | 2½ |
| Binders' Boards, ℔ ton | 45.00 | @ | 50.00 |
| Leather Board, Common, ℔ lb | 3 | @ | 4 |
| Leather Board, counter | 5 | @ | 8 |
| Leather Board, extra | 8 | @ | 10 |
| Tar Boards, ℔ ton | 100.00 | @ | 110.00 |

**Chemicals.**

| | | | |
|---|---|---|---|
| Alkali | 1.00 | @ | 1.10 |
| Aluminous Cake, currency | 1¼ | @ | 1½ |
| Alum, American ground | .... | @ | 1.95 |
| Alum, American lump | .... | @ | 1.85 |
| Anti-Chlorine | 2 | @ | 2½ |
| Bichromate Potash, American | 10 | @ | .... |
| Bleaching Powders | 2¼ | @ | 2¼ |
| Blackley Blue | 2.00 | @ | 3.00 |
| Caustic Soda, 74 ℔ cent | .... | @ | 2.65 |
| Clay, English, ℔ ton | 14.00 | @ | 18.00 |
| Clay, American, ℔ ton | 10.00 | @ | 11.00 |
| Copperas, ℔ lb | 65 | @ | 75 |
| Extract Logwood | 5½ | @ | 11½ |
| Lime, Rockland, ℔ bbl | 90 | @ | .... |
| Prussian Blue, ℔ lb | 50 | @ | 60 |
| Prussiate Potash, American, yellow | 22 | @ | 22½ |
| Prussiate Potash, red | 38 | @ | 38½ |
| Rosin, common strained, ℔ bbl | 1.90 | @ | 2.50 |
| Rosin, Medium | 2.20 | @ | 3.00 |
| Rosin, extra pale, ℔ bbl | 3.00 | @ | 4.50 |
| Sal Soda, English, ℔ lb | 1.00 | @ | 1.05 |
| Soda Ash, 48 ℔ cent, caustic | 1.40 | @ | 1.60 |
| Soda Ash, 48 ℔ cent, carbonated | 1.37 | @ | 1.50 |
| Soluble Blue | 55 | @ | 65 |
| Sugar Lead, white | 11 | @ | 12 |
| Sugar Lead, brown | 5½ | @ | 6 |
| Sulphuric Acid, 66° | ½ | @ | 1¼ |
| Terra Alba, ℔ ton | 15.00 | @ | 20.00 |
| Ultramarine, ℔ lb | 12½ | @ | 15 |
| Venetian Red, ℔ lb | 1½ | @ | 2¼ |
| Vitriol, Blue | 3½ | @ | 3¾ |
| Yellow Ochre | ½ | @ | 1 |

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Twenty-five words or less, one dollar each insertion. Over twenty-five words, four cents a word each insertion, up to eighty words. Cash should accompany order.

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WANTED—TWO FIRST-CLASS CALENDER men. Address W. V., care of Paper Trade Journal.

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WANTED—SITUATIONS BY TWO ENGINeers and machine tenders; worked on all grades of paper; over twenty years' experience; best of references. Address G. H. H., care Journal.

PAPER MILL WANTED—WILL LEASE, with right to purchase; must be located on a railroad and have good water power; give full particulars, location and price. RESPONSIBLE, care Paper Trade Journal.

SITUATIONS WANTED BY FIRST-CLASS superintendents, machine tenders and engineers; worked on all grades of paper; both slow and fast running machines; can furnish best references if required. Apply to EAGLE LODGE No. 1, Brotherhood of Paper Makers, Box 672, Holyoke, Mass.

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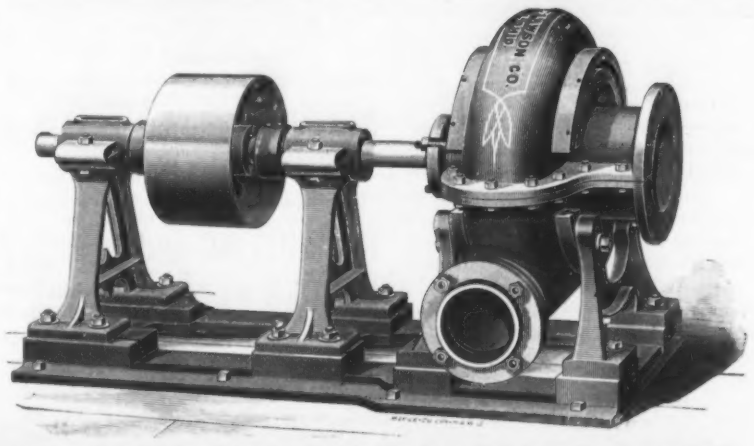

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My attention having been called to the fact that certain parties are infringing certain Letters Patent granted to me, to wit: No. 212,866, dated March 4, 1879, covering a new form of carpet lining, and No. 235,698, dated December 21, 1880, covering the method of and apparatus for making the same, this is to notify all such persons, whether manufacturers or dealers, that any infringement of either of said patents will be prosecuted to the full extent of the law. MOSES NEWTON. Patentee.

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### RECEIVERS' SALE.

Sale of the Entire Assets and Property of the Friend & Fox Paper Company.

COMMON PLEAS COURT, Hamilton Co., Ohio.

GEO. N. FRIEND *et al.*, Plaintiffs, vs. THE FRIEND & FOX PAPER CO. *et al.*, Defendants. } No. 97720.

Pursuant to an order issued by the Court of Common Pleas in the above cause, the undersigned, as receivers, will offer for sale at public auction, the entire assets and property belonging to said company, except the book accounts and bills receivable.
Said assets consist of three paper mills: one located at Lockland, Ohio, one at Crescentville, Ohio, and one at Rialto, Ohio.
The mill at Lockland consists of the mill building, machinery appurtenances water privilege and lease.
The mill at Crescentville consists of the mill building, four dwellings, four acres of land, machinery, appurtenances, water privilege and lease.
The mill at Rialto consists of mill building, fourteen acres of land, eight dwellings, machinery, appurtenances, water privilege and lease.
In addition to the foregoing, the warehouse, one dwelling house, office building and fixtures at Lockland, and the merchandise in the three mills, manufactured and unmanufactured; stock on hand in the warehouse at Lockland and elsewhere; one iron canal boat, one wooden canal boat, four mules and harness; one horse, two wagons and one carriage at the Rialto mill; two horses, two wagons and harness at the Lockland mill, and all other assets and property of said company.
The Rialto mill with its machinery, fixtures, water privilege and lease, fourteen acres of ground and eight dwelling houses, will be offered for sale as an entirety on the premises on Thursday, May 31, 1894, at two o'clock P. M. Immediately after the conclusion of said sale the Crescentville mill, with its machinery, fixtures, water privilege and lease, four acres of land and four dwellings, will be offered for sale as an entirety on the premises. On Friday, June 1, 1894, at two o'clock P. M. in the office of the company at Lockland, Ohio, the Lockland mill, with the ground on which it stands, its machinery, fixtures, water privilege and lease, will be offered as an entirety; thereafter the warehouse and lot, dwelling house, office building and fixtures at Lockland will be offered; also all the other above enumerated assets of said company in lots to suit. At the conclusion of said sales at Lockland all of the assets of said company, except the book accounts and bills receivable, including the three mill plants, will be offered for sale as an entirety.
Additional and detailed information will be furnished by the receivers to any person desiring to bid.
The terms of the sale will be: For the mill plants and other real estate aforesaid one-third cash, balance in four equal instalments in six, twelve, eighteen and twenty-four months from day of sale, with notes bearing interest at six per cent. secured by mortgage on the property sold; for the chattel property one-half cash, balance in notes at six and twelve months from the date of sale, with interest at six per cent. and with approved security. Purchasers may pay all cash. All sales are subject to approval and confirmation by the Court.

EDMOND P. HARRISON,
GEO. B. FOX,
Receivers.

LOCKLAND, Ohio, May 5, 1894.
THOS. McDOUGALL, Attorney.

### BOOKS OF REFERENCE

THE following is a list of Books of Reference on subjects connected with Paper Making, Chemicals, Colors, Machinery, Hydraulics, &c.:

KOOPS.—Historial Account of the Substances which have been used to describe Events and to convey Ideas from the Earliest Date to the Invention of Paper. By Matthias Koops. Printed on Paper Manufactured solely from Straw. London, 1801. ..... 10 00

KUTTER.—The New Formula for Mean Velocity of Discharge of Rivers and Canals. 8vo. ..... 5 00

LEFFEL.—The Construction of Mill Dams. 8vo. ..... 50

MUNSELL.—A Chronology of Paper and Paper Making. 8vo. ..... 2 00

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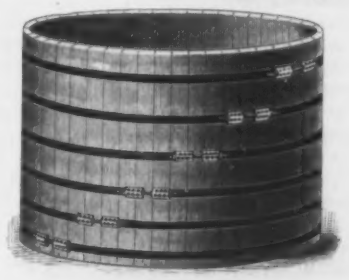

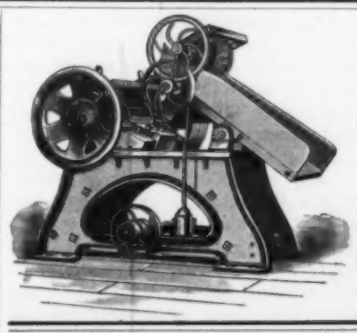

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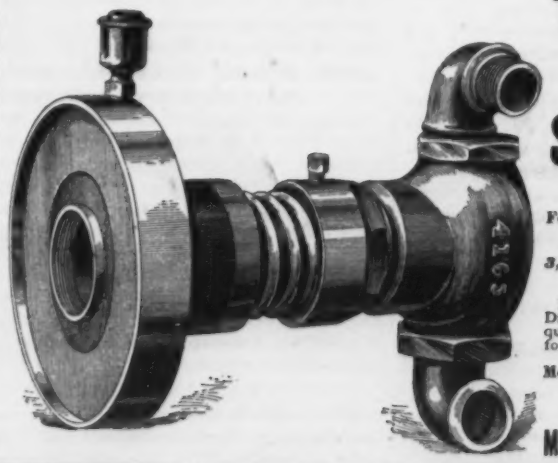

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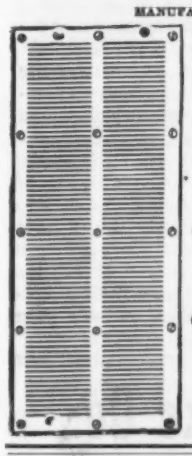

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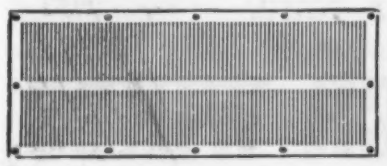

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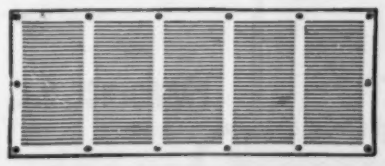

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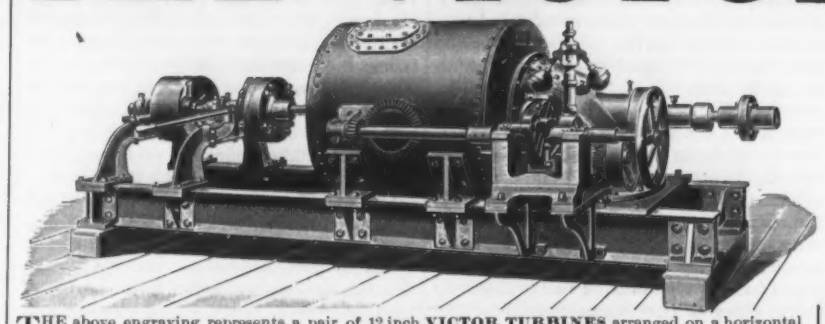

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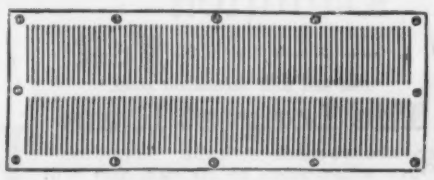

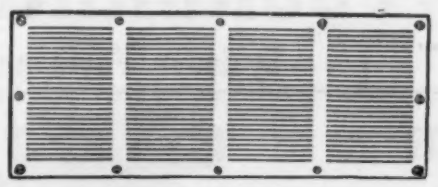

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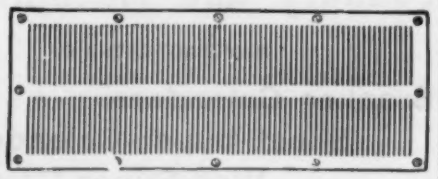

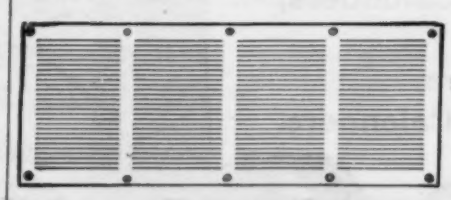

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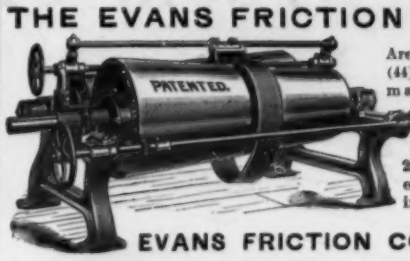


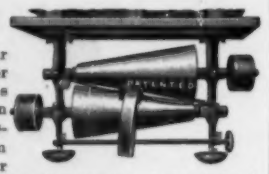


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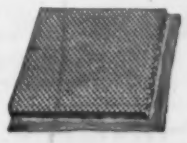

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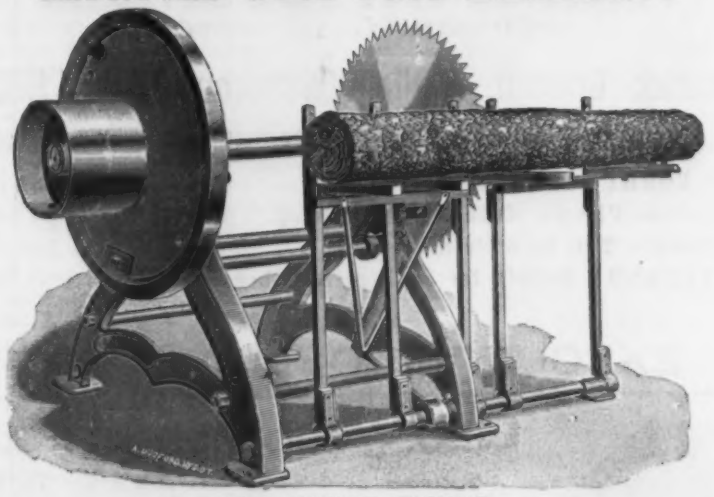

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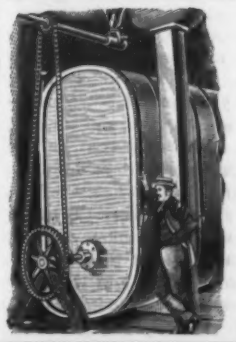

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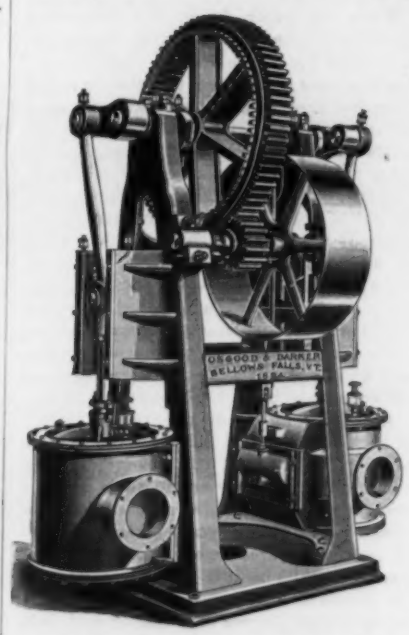


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One 70 inch machine complete, Gould screen, Fourdrinier wire, 70x33 inches; first and second presses; eight iron dryers, 36x65¾ inches; stack five chilled rolls, four 12 inches, one 16x64 inches face; upright reel, slitter and winder.

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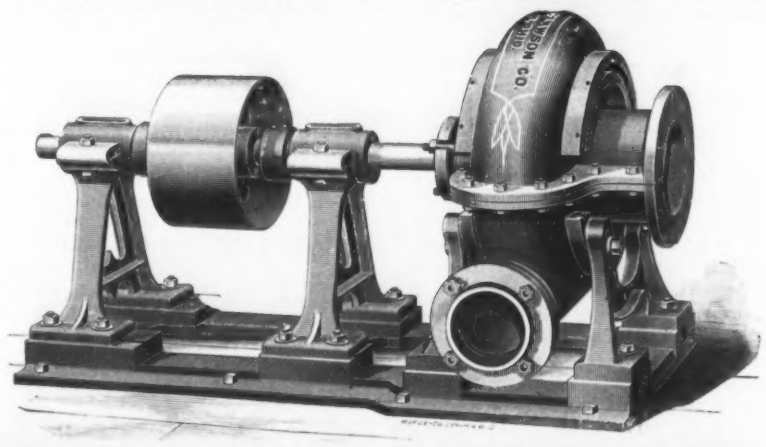

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My attention having been called to the fact that certain parties are infringing certain Letters Patent granted to me, to wit: No. 212,806, dated March 4, 1879, covering a new form of carpet lining, and No. 235,698, dated December 21, 1880, covering the method of and apparatus for making the same, this is to notify all such persons, whether manufacturers or dealers, that any infringement of either of said patents will be prosecuted to the full extent of the law. MOSES NEWTON, Patentee.

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### RECEIVERS' SALE.

Sale of the Entire Assets and Property of the Friend & Fox Paper Company.

COMMON PLEAS COURT, Hamilton Co., Ohio.

GEO. N. FRIEND *et al.*, Plaintiffs, vs. THE FRIEND & FOX PAPER CO. *et al.*, Defendants. } No. 97720.

Pursuant to an order issued by the Court of Common Pleas in the above cause, the undersigned, as receivers, will offer for sale at public auction, the entire assets and property belonging to said company, except the book accounts and bills receivable.

Said assets consist of three paper mills: one located at Lockland, Ohio, one at Crescentville, Ohio, and one at Rialto, Ohio.

The mill at Lockland consists of the mill building, machinery appurtenances water privilege and lease.

The mill at Crescentville consists of the mill building, four dwellings, four acres of land, machinery, appurtenances, water privilege and lease.

The mill at Rialto consists of mill building, fourteen acres of land, eight dwellings, machinery, appurtenances, water privilege and lease.

In addition to the foregoing, the warehouse, one dwelling house, office building and fixtures at Lockland, and the merchandize in the three mills, manufactured and unmanufactured; stock on hand in the warehouse at Lockland and elsewhere; one iron canal boat, one wooden canal boat, four mules and harness; one horse, two wagons and one carriage at the Rialto mill; two horses, two wagons and harness at the Lockland mill, and all other assets and property of said company.

The Rialto mill with its machinery, fixtures, water privilege and lease, fourteen acres of ground and eight dwelling houses, will be offered for sale as an entirety on the premises on Thursday, May 31, 1894, at two o'clock P. M. Immediately after the conclusion of said sale the Crescentville mill, with its machinery, fixtures, water privilege and lease, four acres of land and four dwellings, will be offered for sale as an entirety on the premises. On Friday, June 1, 1894, at two o'clock P. M. in the office of the company at Lockland, Ohio, the Lockland mill, with the ground on which it stands, its machinery, fixtures, water privilege and lease, will be offered as an entirety; thereafter the warehouse and lot, dwelling house, office building and fixtures at Lockland will be offered; also all the other above enumerated assets of said company in lots to suit. At the conclusion of said sales at Lockland all of the assets of said company, except the book accounts and bills receivable, including the three mill plants, will be offered for sale as an entirety.

Additional and detailed information will be furnished by the receivers to any person desiring to bid.

The terms of the sale will be: For the mill plants and other real estate aforesaid one-third cash, balance in four equal instalments in six, twelve, eighteen and twenty-four months from day of sale, with notes bearing interest at six per cent. secured by mortgage on the property sold; for the chattel property one-half cash, balance in notes at six and twelve months from the date of sale, with interest at six per cent. and with approved security. Purchasers may pay all cash. All sales are subject to approval and confirmation by the Court.

EDMOND P. HARRISON, GEO. B. FOX, Receivers.

LOCKLAND, Ohio, May 5, 1894.

THOS. McDOUGALL, Attorney.

### BOOKS OF REFERENCE

THE following is a list of Books of Reference on subjects connected with Paper Making, Chemicals, Colors, Machinery, Hydraulics, &c.:

KOOPS.—Historial Account of the Substances which have been used to describe Events and to convey Ideas from the Earliest Date to the Invention of Paper. By Matthias Koops. Printed on Paper Manufactured solely from Straw. London, 1801..... 10 00

KUTTER.—The New Formula for Mean Velocity of Discharge of Rivers and Canals. 8vo..... 5 00

LEFFEL.—The Construction of Mill Dams. 8vo..... 50

MUNSELL.—A Chronology of Paper and Paper Making. 8vo..... 2 00

NEVILLE.—Hydraulic Tables, Coefficients and Formulæ for Finding the Discharge of Water from Orifices, Notches, Weirs, Pipes and Rivers. 12mo..... 5 00

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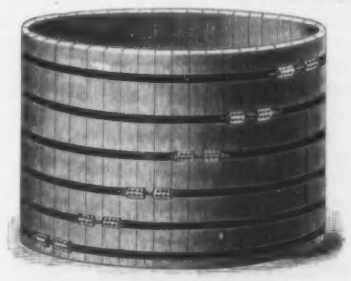

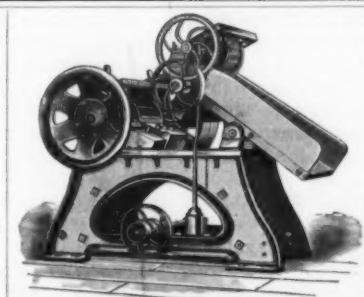

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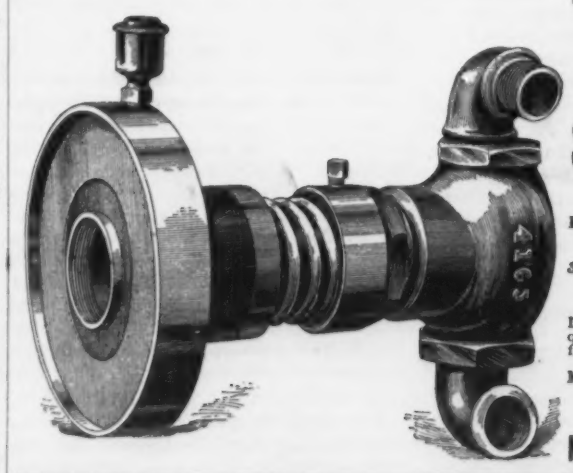

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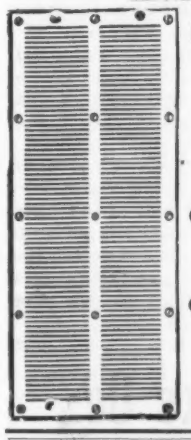

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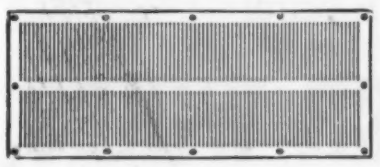

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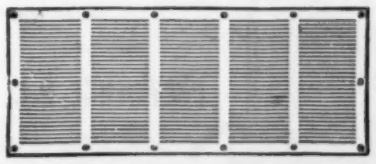

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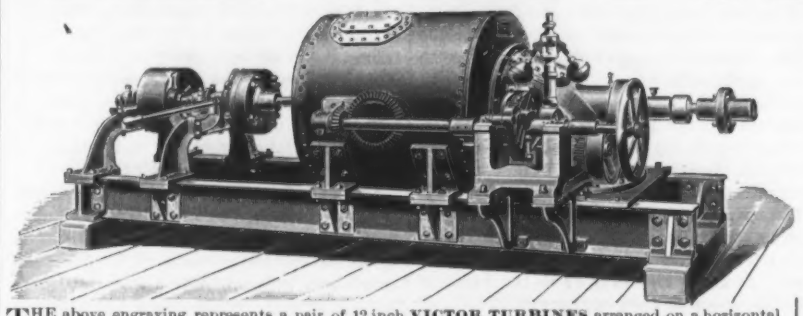

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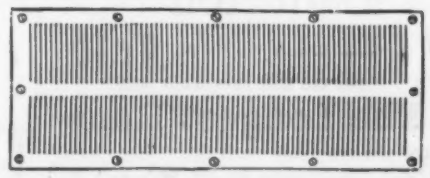

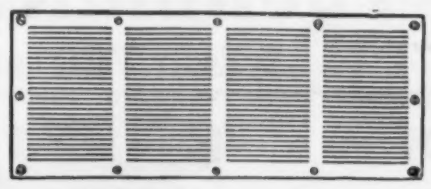

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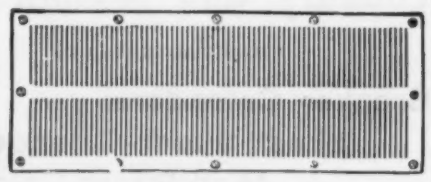

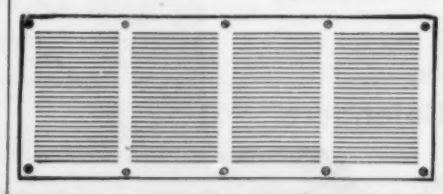

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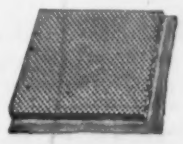

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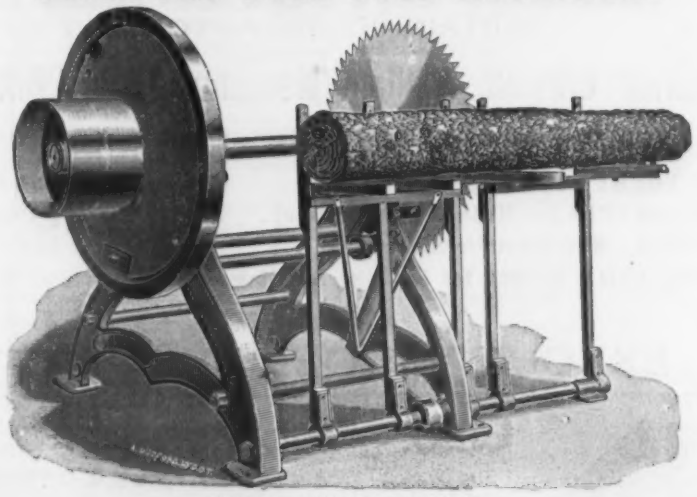

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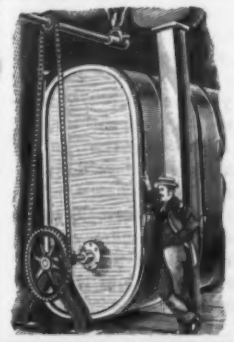

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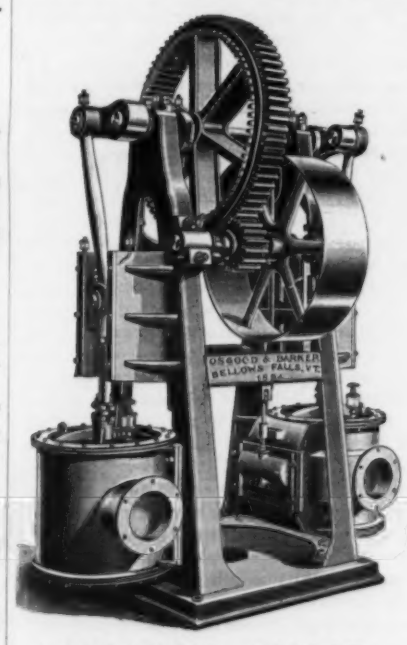


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*An Exceedingly Simple and Efficient Machine.*

*The Cheapest in the Market.*

## Manufacturing News.

EASTERN STATES.

The old paper mill at Maynard, a wooden building, which has stood in the town for a great many years, and which was destroyed by fire on May 14, was owned by the Assabet Manufacturing Company. It has not been used of late for manufacturing purposes. Years ago it was one of the principal paper mills of Massachusetts.

Keeney Brothers, Manchester, Conn., propose to shut down their mill about June 1 for extensive repairs, including putting in a new water wheel and three new beaters.

The Otis Falls Pulp Company, Livermore Falls, Me., proposes to put in a sulphite fibre plant.

F. R. Walker & Son, Burnside, Conn., are running only one machine, their contract for paper for revenue stamps having expired.

The old paper mill at Loudville, Mass., is being fitted up by Mr. Morley for the manufacture of heavy paper board for shoe buttons. It is among the possibilities that button machinery will be set up there as well.

The Hartford Manilla Company is busy making paper for the Government envelopes. Its contract with the Plimpton Manufacturing Company will expire on October 1, after which, in case no deal is made with Mr. Purcell, the new contractor, it will continue to make envelopes for the trade.

It is possible that the mill of the Hanmer & Forbes Company, Burnside, Conn., will be leased by parties who will start it up this coming summer.

Since the depression in the knit goods industry the trade in press boards has fallen off so considerably that Case Brothers, Highland Park, Conn., have changed onto other grades of paper.

MIDDLE STATES.

The wood pulp mill at Gouverneur, N. Y., for the first time in its existence, is reported to be running on half time.

The paper mill property at the lower falls, Rochester, N. Y., has been conveyed by Evelyn S. Hastings and others to the Genesee Paper Company.

The Howland Paper Company, Sandy Hill, N. Y., will build an addition to the Union Bag and Paper Company's building, in the shape of an L, running to John street. The present structure is not large enough for the demands of the trade, and when the addition is completed and equipped it will be the largest plant for making bags in the world. By that time the tracks of the Delaware and Hudson Railroad Company will run by the doors of the company, the cars being loaded from the works direct. This addition will increase the capacity of the company, which is now 4,000,000 bags per day. No more than half of the second story will be used for manufacturing, the balance for finishing and baling, leaving all of the first floor (of the old and new building) for storage and shipping purposes.

It is reported that the hands in the paper mill at Minsi, Pa., have struck because of a 25 per cent. reduction in wages without notice.

WESTERN STATES.

The Beloit Iron Works is building a 106 inch Fourdrinier machine for the Badger Paper Company, Kaukauna, Wis.

The flume at the Gaylor pulp mill, Mishawaka, Ind., was nearly washed out on Sunday morning, May 13. The water had made its way through one corner of the flume and was rapidly washing out the dirt at the east side. The accident was discovered just in time by Levi Behney, foreman of the mill, and the water let out of the race as quickly as possible. Several factories were obliged to shut down on account of the break.

Two new rag engines have been ordered for the new paper mill of the Falls Manufacturing Company, Oconto Falls, Wis.

The mill of the Nekoosa Paper Company, Centralia, Wis., is nearly completed. The water in the river having fallen, work on the dam has been resumed.

CANADA.

Ritchie & Ramsay have a new factory for the manufacture of coated papers and cardboard at New Toronto, Ont. Their building is 100x150 feet.

## How to Collect Bills.

"I think about all that can be said about collecting is that the easiest time to make a collection is the minute an account is due," observed an implement dealer to the St. Paul *Trade Journal*. "Perhaps if there was any better time to make collection it is when you sell the goods; but there is a way in which people sell goods sometimes that makes a man slow in paying. In other words, if a customer can be impressed with the idea that he is buying something worth 100 cents on the dollar and which really is valuable, and that it ought to be paid for in cash very quick, it is a pretty good way to make collections.

"The average dealers are not careful enough about having a definite time stated, and impressing upon a customer that they are very anxious to have pay at that particular time; and a pretty good way to do is to say, 'Now I have got to make my payments at that time and I shall expect my money.' That is to say, it is just as well for a customer to understand that the dealer cannot meet his obligation unless the customer meets them to him. It is not necessary to go out to abuse anybody. There are a great many people who make that mistake; they think that it is necessary to abuse a customer in order to get him to pay it.

"Now, the fact of it is that the right way to make collections is to urge your own need. You need money, and get the man in sympathy with your own needs and you will make collections. One of the best ways in the world to make collections is to get into sympathy with the man. If he says he is hard up you can tell him you are a great deal harder up; you can impress that upon him in such a way that he will make an effort to pay when he would not in any other way. And then, as I said before, impress upon the customer when the goods are sold that you expect the money at that time, because you have got to have it at that time. I believe that while there are other ways of collecting, at the same time, in a general way, it is a pretty good way to get at it."

## Art in Paper.

Not the art in cream laid and woven papers, elegant though they are, and rivalling in hues the varied tints on a painter's palette, nor yet the graceful, but usually untranslatable monograms, the aristocratic crests and other devices favored alike by all classes, from the social lawgiver of the "400," even McAllister himself, to the little shop girl who selects her artistic stationery from the bargain counter, but the art which lurks in tissue paper and cardboard and responds to the inspired arguments of paste pot and scissors.

When the paper flower fad descended upon the women of the United States Art must have felt the proverbial "cold streak" run down her back; now the women feel it whenever they recall those travesties upon nature which ran riot in all of the households of the land. I had almost said the craze was good for no one except the paper makers; but that would not be quite true, for out of those crude and over zealous beginnings a dainty and charming decorative art has been evolved which bids fair to remain in favor and grow in pleasing qualities. The world long ago ceased to be surprised over paper products, but accepts them quite as a matter of course, no matter how odd and apparently strained the relations between material and use may seem to be.

Improvement in the quality and tinting of tissue papers has enlarged the domain of their utility, and the advent of crêpe tissue marked a new era in their use as a decorative agent. Formerly the results of tissue paper manipulation generally ended in tawdry failures; now crude taste can hardly spoil its beautifying effects, while in the hands of a person of skill and artistic sense a high degree of elegance and richness is achieved. The articles which can be fashioned from tissue paper, and made to serve useful and ornamental purposes, could not be described within the space of an ordinary newspaper article. Lamp shades are the most familiar perhaps, and they successfully rival the popular confections of silk and lace. The slight cost of the paper shade is in its favor, for when dust has invaded its crinkles it can be thrown away without regret and a new one made without agonizing over the expense.

Among the daintiest of paper creations are candle rings and shades; they are usually of floral design. When the flowers are roses, or cup shaped, the ring is formed of the flower, with petals standing naturally, while the shade is the flower reversed. Sprays like Japanese honeysuckle or bridal wreath are simply twisted around to form the ring and border the shade; wreaths of small flowers like violets, forget-me-nots, lilies of the valley and geraniums are similarly arranged, and are as natural as nature, lacking nothing but the fragrance.

Bonbonnières are as pretty as they are cleverly fashioned, the delicately tinted paper being wheedled into all sorts of odd conceits over the cardboard body, and finished with sprays of flowers tied with dainty ribbons. Boxes, however, are in limitless variety; there are whole sets for the toilet table, others for photographs, for knick-knacks and the many trifles ladies always have on hand. They are made with cardboard bodies and are charmingly artistic, reasonably substantial and convenient in use. Photograph frames are in equal variety and extremely decorative; wall pockets also are made in many designs, and with their dainty floral and ribbon garniture are highly ornamental as well as useful. As for baskets, there are all kinds, from a spool basket to a waste basket, made of paper twisted into ropes and formed into spirals, wheels, curves, diamonds, braids and other patterns, and put together with wonderful skill.

The parlor, sitting room and my lady's chamber do not monopolize tissue paper art. The dining room claims a share in it also, and the beauty of luncheon tables and 5 o'clock teas is greatly enhanced thereby. Dainty cups of paper, simulating decorated china, are filled with charlotte russe, roman punch or ices, and set in the midst of little mats of small blossoms, or in the heart of tulips, roses or chrysanthemums made of crêpe paper. Salads are served in tiny paper tubs or pails almost hidden in beds of paper moss. Salted almonds repose in dainty baskets of paper, with handles twined with smilax and almond blooms. Paper napkins are also good form on pretty luncheon tables, and napkin rings made of cardboard covered with crêpe paper, a frill of the same furnishing the edges. A ribbon tied round the centre, on the ends of which a suitable motto has been painted, and a cluster of violets or carnations tucked under the ribbon, make a pretty souvenir which may be taken home by the guests.

Of paper flowers little has been said, but the making of them so nearly approaches perfection that it often requires the sense of touch to determine their real character. Good taste no longer forms them into bouquets, however, but scatters them about, thus bringing out their decorative qualities. Nothing is prettier than a bunch of chrysanthemums arranged in a long spray and fastened to the corner of a table or mantel with a generous bow and ends of handsome ribbon. In this way the flowers are made to play an important part in the cheery aspect of a room, without anyone being deceived as to their fictitious qualities.

At a fair in Brooklyn last winter the flower booth was a veritable bower of exquisitely made paper flowers, which, at the close of the fair, were sold at auction, the receipts being added to those of the booth. The lemonade well was under an arbor of blooming wistaria vines, so real as almost to deceive the elect. The body of the vines was made of cotton wool, covered with crinkled tissue. At the close of the fair the vines were cut into lengths and sold at auction, the bidding for which was the most lively incident of the fair.

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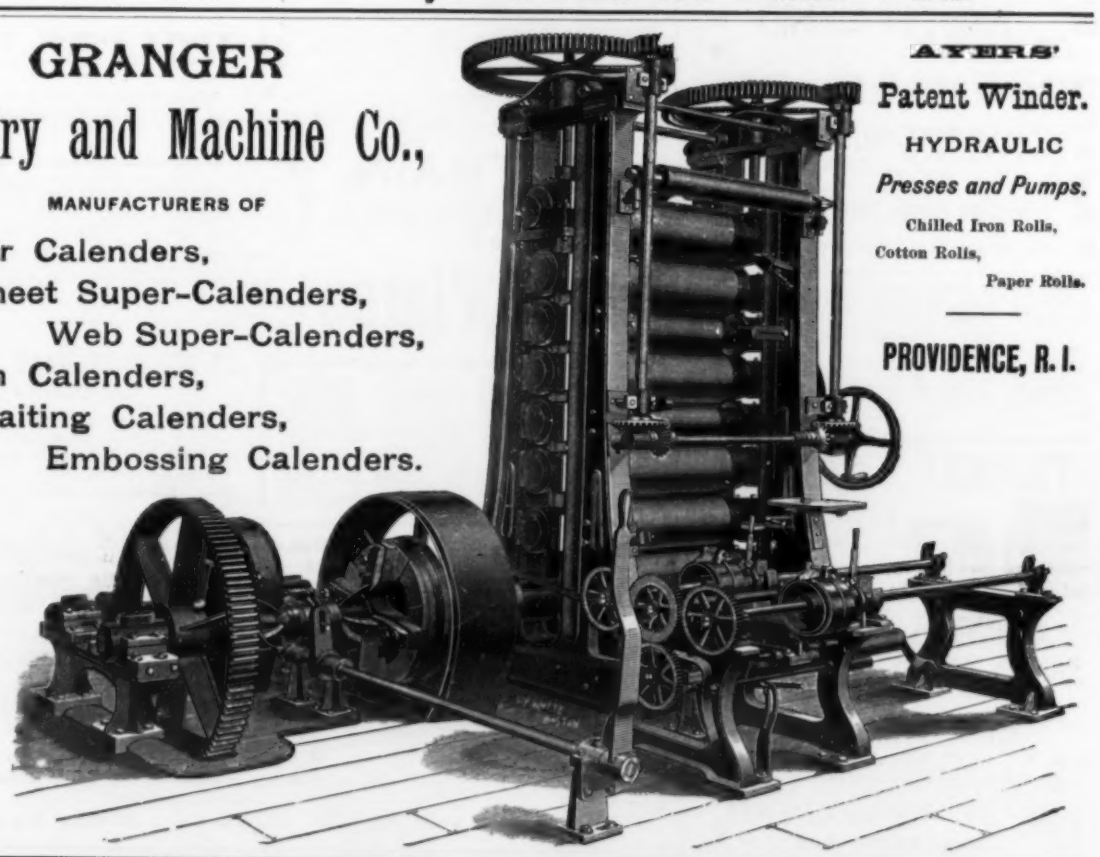

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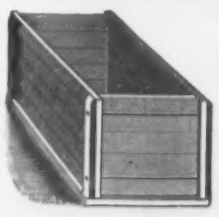

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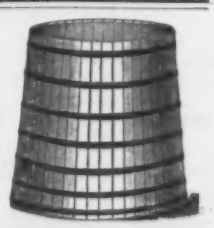


## Legal Decisions.

[SPECIALLY REPORTED FOR THE PAPER TRADE JOURNAL.]

**What Constitutes Holder for Value.**—The transferee of a negotiable note, taken before maturity as collateral security for a precedent debt, is a holder for value, and he may enforce it against the accommodation maker and indorser, if there be no diversion or other fraud in its acquisition.—*Weaver v. Farrington (Common Pleas of New York City and County, General Term), 27 N. Y. Supp. 971. (48.)*

**Effect of Error in Contract of Affreight. ment.**—Where, in reply to inquiry of its local agent about freight rates, a railroad company's general agent quotes a rate of 89½ cents per hundred, which by some error is received by the local agent as 69½ cents, and is so quoted to the shippers, who accept such rate, without knowledge of the mistake, there is a valid and binding contract between the shippers and the company, under which the latter is bound to ship the freight at the rate quoted them by the local agent.—*Borden v. Richmond and D. R. Co. (Supreme Court of North Carolina), 18 S. E. Rep. 392. (98.)*

**Right of Holder of Partnership Note Indorsed by Partner.**—The holder of a partnership note, made payable to one partner and indorsed by him to the holder, can prove it in insolvency against the estates of both of the firm and the indorsing partner, before any dividend is declared on either.—*Roger Williams National Bank v. Hall (Supreme Judicial Court of Massachusetts), 35 N. E. Rep. 666. (51.)*

**Recovery of Money Obtained by Fraud.**—Where money is wrongfully obtained by means of a voidable contract, and for no consideration whatever, a suit may be maintained for its recovery without a prior demand for its return.—*Baldwin v. Hutchinson (Apellate Court of Indiana), 35 N. E. Rep. 711. (37.)*

**Effect of Payment to Wrong Person.**—Where an attorney takes a note and mortgage, making them payable to his clerk, who, at the request of the attorney, assigns them for value to a client, who does not notify the mortgagors of the assignment, and who receives payments of interest from the attorney, and the mortgagors, supposing that the attorney is owner of the note and mortgage, pay him the interest and principal, and he absconds, they cannot obtain cancellation of the instruments. An assignee of a mortgage owes no duty to the mortgagor to notify him of the assignment.—*Mulcahy v. Fenwick (Supreme Judicial Court of Massachusetts), 36 N. E. Rep. 689. (99.)*

**Warranty in Sale of Machine with Option to Return.**—Where the purchasers of a machine have the right to accept or reject it after testing it, they cannot return it, and refuse to pay for it, a year after they have received it, and four months after they were in a position to test it, on the ground that it was of little value, when during nine months of such year the sellers persistently urged a settlement or return of the machine.—*S. C. Forsaith Machine Co. v. Mengel (Supreme Court of Michigan), 58 N. W. Rep. 305. (80.)*

**Who Are Partners in a Partnership.**—Although a partner has no authority to bind his co-partners by entering into another partnership, such co-partners, by participating in the business and profits of the other partnership, and joining in an action for its dissolution and the appointment of a receiver, make themselves partners in fact, and are liable as such on the dissolution.—*Miller v. Rapp, (Supreme Court of Indiana), 35 N. E. Rep. 693. (64.)*

**Validity of Assignment.**—The fact that a note preferred by the terms of an assignment for the benefit of creditors was paid before delivery of the assignment does not invalidate the assignment, when the assignee was informed of the payment, and the creditors were not prejudiced by the failure to withdraw the item.—*Jones v. McQueen (Supreme Court of Mississippi). 14 So. Rep. 146. (54.)*

**When Master is Not Liable.**—Where a servant was injured by being caught in a set screw which projected a little beyond the pulleys and belt, but was almost in their line of motion, the fact that he was not told about the set screw does not make the master liable when the servant knew that the pulleys, belt and shaft were dangerous.—*Rooney v. Sewall & Day, Cordage Company (Supreme Judicial Court of Massachusetts), 36 N. E. Rep. 789. (63.)*

**Validity of Sale Under a Deed of Trust.**—On an issue as to whether one's purchase of goods sold under a trust deed was fraudulent as being made in the interest of the grantor in the deed to cover up the goods as against his creditors, statements made by such grantor before and after the sale are not admissible, unless a conspiracy to defraud is shown to have existed at the time of the sale. The fact that he purchased the goods intending that the grantor should have them would not render the sale void as to the grantor's creditors.—*Clark v. Cox (Supreme Court of Missouri, Division No. 2). 24 S. W. Rep. 221. (101.)*

**Measure of Damages for Breach of Contract.**—Where a contract of employment provides that the employee may be discharged on giving him a week's notice and paying him two weeks' salary, a refusal to accept his tender of service at the time of performance is a breach of the contract, and for such breach without the notice and payment of the two weeks' salary the mseaure of damages is not the sum agreed to be paid on the cancellation of the contract, but is the amount of his salary for the entire term of employment, less what he has earned or might have earned otherwise.—*Watson v. Russell (Common Pleas of New York City and County, General Term), 28 N. Y. Supp. 26. (101.)*

**Damages for Deprivation of Water Rights.**—Where the statute empowered a village, in order to increase its water supply, to appropriate such water courses as were necessary within certain limits, and provided for the payment of damages to persons injured by such appropriation, the measure of damages for the taking of water from a stream which supplied power for a mill was the value of the right to the amount of water that could be taken through the pipe the village put in for that purpose, and not what actually was being taken at the time of the recovery. In an action against such village for the appropriation of water which supplied power for the mill it is proper to show the cost of steam power required to replace the water power lost by the diversion of the water—*Leonard v. Village of Rutland (Supreme Court of Vermont), 26 At. Rep. 885. (141.)*

**Violation of Interstate Commerce Act.**—A contract to procure rebates from railroad companies for a shipper is void because it contemplates a violation of the interstate act, which declares that discrimination by carriers is thereby "prohibited and declared to be unlawful." Where a contract to procure rebates from railroad companies does not show on its face that rebates from railroads carrying freight outside the State in violation of the Interstate Commerce act were contemplated, evidence that such rebates were in fact procured is admissible to show the intent of the parties in making the contract.—*Parks v. Jacob Dold Packing Company (Superior Court of Buffalo, General Term). 27 N. Y. Supp. 289. (95.)*

## Electro-Chemistry in the Paper Mill.

*Third Paper—Electrical Affinity.*

[WRITTEN FOR THE PAPER TRADE JOURNAL.]

BY JAMES F. HOBART.

Chemical affinity is that force which induces atoms to unite and form chemical molecules. It is influenced by various causes, among them being cohesion, solution, heat, light and electricity. The electro-chemical attraction of oxygen for zinc may be accounted for by supposing that all substances possess a definite amount of attraction for electricity, and that the attraction of zinc in this respect exceeds that of copper and the other metals. We may then regard the zinc as attracting its electric charge rather than as attracting the oxygen.

Another and later view of the matter is that chemical affinity may be caused by the opposite attractions of electrical charges naturally possessed by the atoms of matter. This would appear to be rendered probable by the law of electro-chemical equivalency (valency). Thus we may regard electricity as the vital spark of all chemical unions. Indeed, Lodge says, "The electric charge belonging to each atom of matter is a simple multiple of a definite quantity of electricity, which quantity is an absolute constant, quite independent of the nature of the particular substance to which the atom belongs. The specific charge thus hypothetically given to each atom of matter is believed never to be lost. Atoms capable of entering into combination with each other are supposed to be oppositely charged. Hence chemical affinity is, as stated above, the result of mutual attractions of opposite electrical charges naturally and originally possessed by the atoms of matter."

Following out this theory, Lodge also points out: (1) That the amount of electricity possessed by each monad* atom is exceedingly small, being about the hundred thousand millionth part of the ordinary electro-static unit, or less than the hundred trillionth of a coulomb. (2) The charge being small, the potential is necessarily low; probably between one and three volts is a high difference of potential between two oppositely charged atoms (and to electrolize these atoms it is only necessary to provide a cement of sufficient voltage to overcome this difference of potential, plus the ohmic resistance of the apparatus). (3) The nearness of the attracting atoms causes a very strong electro-static attraction between them. (4) Chemical affinity or atomic attraction is caused by the presence of these electric charges. (5) The electrical force between two atoms at any distance is ten thousand million billion billion times greater than their gravitation attraction at the same distance, or the force has an intensity per unit of mass capable of producing an acceleration nearly one trillion times greater than that of gravity at the earth's surface.

The atoms being then held together by electrical attraction, it is not surprising that they may be separated by an opposing electrical force of greater strength than that which unites or holds the elementary atoms in combination. If we know the chemical and electro-chemical equivalents of the elements we can then, as stated in the second paper, ascertain how much electrolytic work can be done by a given current of electricity. It is then necessary to have a table of the elements and their equivalents, as presented herewith.

It is first (in originating the table) determined experimentally that one coulomb of electricity expended electrolytically will liberate .000010384 gram of hydrogen; therefore a current of one ampere will liberate .000010384 gram of hydrogen per second. The number .000010384 is the electro-chemical equivalent of hydrogen.

The electro-chemical equivalents of the other elements are obtained by multiplying the electro-chemical equivalent of hydrogen by the chemical equivalent of the substance. By multiplying the electro-chemical equivalent of any substance by the strength of current which passes (amperes), we can obtain the weight of that substance liberated by electrolysis.

The table gives only a part of the seventy elements known to science, those not likely to be used in paper mill electro-chemistry being excluded. The logarithms given serve to greatly curtail the calculations necessary for figuring electrolytic examples and problems.

Referring to the table it will be seen that there are two kinds of elements and that all are included in one kind or the other; that is, all elements are either electro-positive or electro-negative. There are no neutrals. When an electric current is sent through an electrolyte the decomposition which ensues is called electrolytic decomposition.

The term electrolyte is applied to liquids usually, and electricity is conducted differently through such a medium than it is through a wire. According to modern views electric energy is supposed to pass through the ether or other dielectric surrounding the conductor, the so-called conductor forming merely a sink where the electrical energy dissipates itself. The conductor simply acts to direct the current, instead of—as was formerly believed—passing or flowing through the wire. Since, however, the energy practically passes by means of and in the general direction of the conductor there is no objection to speaking of electricity as flowing through the conductor; but there is no passage of electricity through an electrolyte in the same sense as through an ordinary conductor. When through electrolysis an electro-motive force is brought to bear on a molecule of matter, say, of muriatic acid, HCl, it is assumed by some that the liberated hydrogen atoms travel on the whole in one direction, and the liberated chlorine atoms in the opposite direction. The atoms thus moving through the liquid may by their electric charges be said to convey electricity, and this fact has given rise to the term "electrolytic conduction."

In electrolytic conduction the charges are necessarily equal, but the speeds of their motion are unequal. In a given liquid each atom has its own rate of motion no matter with what it has been combined. Hydrogen travels faster than any other kind of atom, and the conductivity of the liquid depends upon the sum of the speeds with which the two opposed atoms travel. This, the "double fluid" hypothesis, is rejected by many scientists, and Grothüss claims that the molecules flow first in one direction and then in another, as they travel back and forth between the anode and cathode, giving up their charges of current and matter, and accordingly as they carry more or less of either of the elements.

Some electrolytes, such as various mixtures of sulphuric acid and water, do seem to possess a true power of conducting electricity, and therefore have a specific resistance, and are heated by the passage of current, the same as with an ordinary conductor. Generally, however, the passage of the electrolyzing current is regarded as different from that of a current which merely heats the conductor, and is distinguished from electrolytes in that the latter do not allow electricity to pass, save by undergoing chemical decomposition.

The resistances offered by various salts in solution has an important bearing upon the economy of electrolysis. Many people have an idea that water is a very good conductor, but, to the contrary, water in a pure state is an almost perfect non-conductor, if such a thing actually exists, which it does not, as all substances are conductors of electricity to some extent, the good conductors being called "conductors," the poor ones "insulators." In calculating the specific resistance of any substance, it is conceded that the matter measured is in the form of a cube 1 centimetre square, or it must have a sectional area of 1 square centimetre, and a length of 1 centimetre. In ascertaining the specific resistance of liquids, they are compared with a cubic centimetre of pure silver, which has a resistance at 0° C. of 1,504 microhms (000,001,504 ohm), the resistance of a like cube of pure water at 75° C (52° Fahr.) is 118,800,000 ohms; therefore, pure water has a resistance 78,916,888,224,734 times as great as pure silver!

I give herewith the resistance of a few liquids likely to be used in paper mill electro-chemistry; they are, as determined by Lupton:

| | | | |
|---|---|---|---|
| Water, pure, at | 75° C. — | 118,800,000 | ohms. |
| " " " | 4° C. — | 9,100,000 | " |
| " " " | 11° C. — | 340,000 | " |

Dilute hydrogen sulphate (sulphuric acid) at 18° C., 5 per cent. acid, 4,88 ohms,

Dilute hydrogen sulphate at 18° C., 3 per cent acid, 1.38 ohms.

Nitric acid at 18° C., density 1.32–1.61. ohms.

Saturated solution of copper sulphate (blue vitriol) at 10° C., 29.30 ohms.

Saturated solution of zinc sulphate at 14° C., 21.50 ohms.

Hydrochloric (muriatic) acid. 20 per cent. acid, at 18° C., 1.34 ohms.

Sal ammoniac (muriate of ammonium), 25 per cent salt, 2.53 ohms.

Common salt (sodium chloride) saturated at 13° C., 5.30 ohms,

It will be observed that the resistance varies considerably with differences of temperature, a fact which should be taken advantage of in electrolysis.

Having ascertained the specific resistance of 1 cubic centimetre of electrolyte, it is easy to calculate the total resistance of any body of that liquid, for the total resistance increases directly with the length or thickness of the body of fluid, and decreases accordingly as the cross-sectional area increases. For instance, 1 cubic centimetre of salt solution has a resistance of 5.3 ohms. If 2 centimetres are so placed that the current must go through both, one after the other (in series), then the total resistance will be $2 \times 5.3 = 10.6$ ohms; but if the 2 cubic centimetres of solution are so arranged side by side (in parallel or multiple) that current goes through both at the same time, then the total resistance becomes $5.3 \div 2 = 2.65$ ohms. Consequently if we have a body of solution with a surface 30 centimetres square, and 10 centimetres thick (about 12×12×4 inches), the total resistance would be $\frac{5.30 \times 10}{30 \times 30} = .06$ ohm nearly. Therefore by using a large area of anode and cathode surface the resistance can be reduced very low. In the above case if the electrodes could be brought within 1 centimetre of each other the resistance would be reduced to $.06 \div 10 = .006$ ohm. Thus it is easily seen that the proper arrangement of anode and cathode for electrolysis demands that their superficial area shall be as great as possible, and that the distance between them shall be reduced to the lowest point.

Besides the specific conduction resistance of the electrolyte, there is also to be considered the electrolytic resistance, or the potential produced in opposition to the decomposing current from the dynamo. Such potential is caused by the anode, cathode and electrolyte acting as an independent battery on their own hook, and the current of electricity from the dynamo must be powerful enough to overcome this counter electro-motive force, or "back pressure" as well as the conductive resistance of the electrolyte.

Various metals have certain fixed electro-motive forces when combined with certain liquids. This is constant, no matter how large may be the surfaces exposed; thus, the "back pressure" in an electrolytic cell 10 feet square is no greater than in one of half a square centimetre.

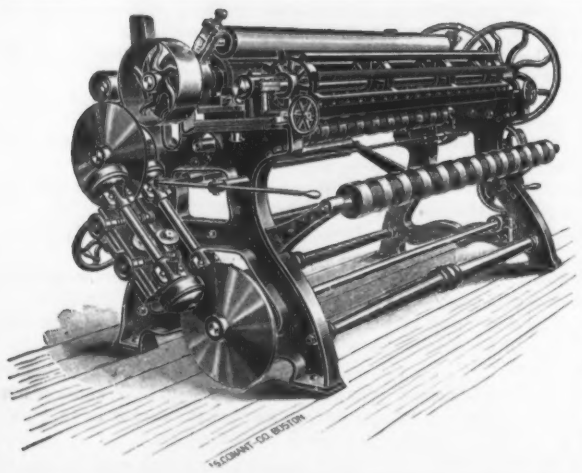
The laws of electrolysis, and the method of determining the opposing electro-motive force of various elements will be discussed in the next paper.

(To be continued.)

* Monad, an ultimate atom.

### ELECTRO-CHEMICAL EQUIVALENTS.

| ELEMENTS. | Symbol. | Valency. | Atomic Weight. | Chemical Equivalent. | Electro Chemical Equivalent. (Grams per Coulomb.) | Coulombs per Gram. q | Grams per Ampere Hour. w | Log. q | Log. w |
|---|---|---|---|---|---|---|---|---|---|
| *Electro-Positive—* | | | | | | | | | |
| Hydrogen | H | 1 | 1. | 1. | .000010384 | 96293.00 | 0.03738 | 4.9836353 | $\bar{2}$.5727000 |
| Potassium | K | 1 | 39.04 | 39.04 | .00040539 | 2467.50 | 1.45950 | 3.3923573 | 0.1649041 |
| Sodium | Na | 1 | 22.99 | 22.99 | .00023873 | 4188.90 | 0.85942 | 3.6221000 | 1.9349055 |
| Calcium | Ca | 2 | 20.5 | 10.25 | .000106426 | 9395.31 | 0.383167 | 3.9730396 | $\bar{1}$.5847198 |
| Manganese | Mn | 2 | 53.9 | 27. | .000280308 | 3566.74 | 1.01151 | 3.5530838 | 0.004880 |
| Magnesium | Mq | 2 | 23.94 | 11.97 | .00012430 | 804.03 | 4.47470 | 2.9055411 | 0.6507614 |
| Aluminum | Al | 3 | 27.3 | 9.1 | .00009449 | 1058.30 | 3.14180 | 3.0245030 | 0.5317086 |
| Copper | Cu | 2 | 63. | 31.5 | .00032700 | 3058.60 | 1.17700 | 3.4855827 | 0.0707765 |
| Gold | Au | 3 | 169.2 | 65.4 | .00067911 | 1473.50 | 2.44480 | 3.1683501 | 0.3882433 |
| Iron | Fe | 2 | 55.9 | 27.95 | .00019356 | 5166.4 | .69081 | 3.7131894 | $\bar{1}$.8431131 |
| Lead | Pb | 2 | 206.4 | 103.2 | .00107100 | 933.36 | 3.185780 | 2.9700027 | 0.5063297 |
| Mercury | Hq | 2 | 199.8 | 99.9 | .0013740 | 968.99 | 3.73450 | 2.9840725 | 0.5722325 |
| Silver | Aq | 1 | 107.66 | 107.66 | .00111800 | 894.41 | 4.02500 | 2.9515386 | 0.6047650 |
| Nickel | Nl | 2 | 58.6 | 29.3 | .00030425 | 3286.80 | 1.09530 | 3.5167733 | 0.0395331 |
| Tin | Su | 2 | 117.8 | 58.9 | .00061162 | 1635.00 | 2.20180 | 3.2 35178 | 0.3427779 |
| Zinc | Zn | 2 | 64.9 | 32.45 | .00033696 | 2967.10 | 1.21330 | 3.4723328 | 0 0839982 |
| *Electro-Negative—* | | | | | | | | | |
| Oxygen | O | 2 | 15.96 | 7.98 | .00008286 | 12068.5 | .2682958 | 3.0841910 | 1.4746648 |
| Chlorine | Cl | 1 | 35.37 | 35.37 | .00036728 | 2722.71 | 1.322302 | 3.4356601 | 0.1213004 |
| Carbon | C | 2 | 11.97 | 5.98 | .000062096 | 16104. | .2235448 | 4.2069336 | 1.3493670 |
| Bromine | Br | 1 | 79.75 | 79.75 | .00082812 | 1207.55 | 2.981237 | 3.0819870 | 0.4743964 |
| Fluorine | F | 1 | 19.06 | 19.06 | .00019792 | 5052.54 | .7124116 | 3.7034254 | $\bar{1}$.8527950 |
| Iodine | I | 1 | 126.53 | 126.53 | .00131390 | 6710.90 | 4.7291053 | 3.8273210 | 0.6748059 |
| Sulphur | S | 2 | 31.98 | 15.94 | .00016552 | 6041.56 | .5958731 | 3.8715122 | $\bar{1}$.7751534 |
| Phosphorus | P | 2 | 30.96 | 15.48 | .00016074 | 6121.92 | .5786058 | 3.7869782 | 1.7624274 |
| Nitrogen | N | 3 | 14.01 | 4.67 | .00004849 | 2062.28 | .1789304 | 3.3148770 | $\bar{1}$.2531955 |



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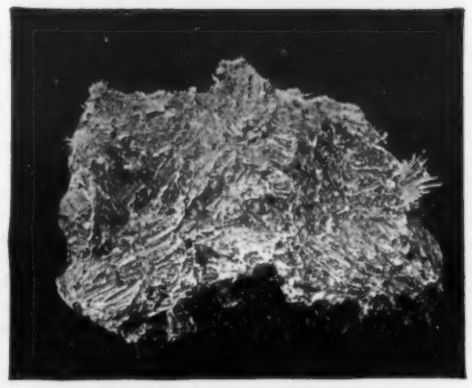

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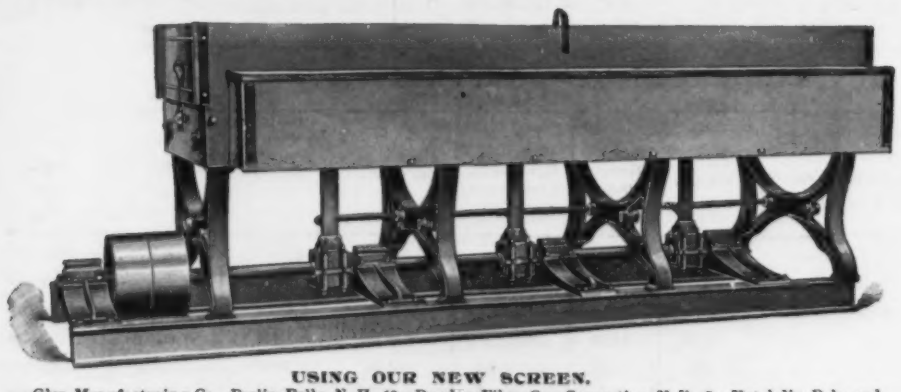

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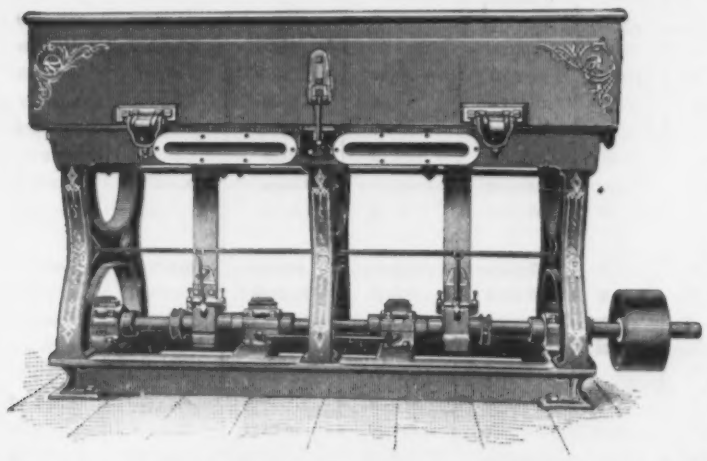

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As years passed it became *the* standard work, and for the past decade copies have sold at large prices, often as high as $30 each, and occasionally for more money. The original book consisted of 422 pages, 8¼ by 11 inches in size.

Mr. Hofmann returned to Germany more than eighteen years ago and settled in Berlin. He established *The Papier Zeitung*, and in due course, about seven years ago, began to write his second and latest Treatise. Thus far he has printed and published probably 1,200 pages in German, and in parts of forty-eight pages, including cover, profusely illustrated by wood cuts. When finished the book will consist of about 1,600 pages (pages size same as in first book), illustrated by 1,500 wood cuts.

We have contracted to translate and publish the work in English in twenty parts, of about eighty pages each, at intervals of not less than sixty days, and at a cost of *one dollar cash, in advance, for each and every part.* When the enterprise is completed the twenty parts will sell, *unbound*, for *twenty dollars.* The binding will be extra. Subscribers can themselves have the parts bound, or have us bind them at extra expense; but it should be noted that no money will be saved by waiting until THE TREATISE is completed and bound.

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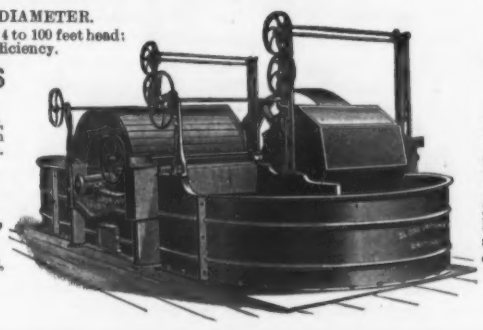

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Superior in construction to any made. Capacity, 4,000 to 6,500 pounds extra good pulp per day, dry weight, per each grinder. Hydraulic feeds, fine adjustments; strong and reliable in every way. Two and three pocket machines.

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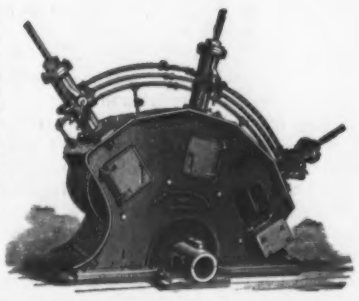

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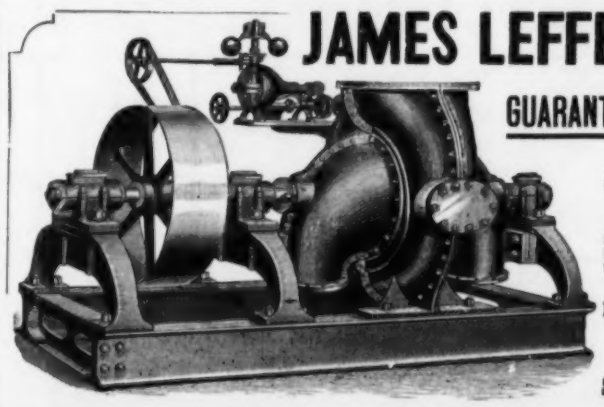

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SIX inches to NINETY-SIX inches diameter, under heads ranging from 2 to 350 feet, in many of the finest paper mills of this country, several companies using TWENTY to THIRTY-TWO Leffel Wheels each.

The New Wheels give HIGHER SPEEDS under low heads, and LOWER SPEEDS under high heads than any Water Wheel now made. **MANY STYLES ON HORIZONTAL SHAFTS**

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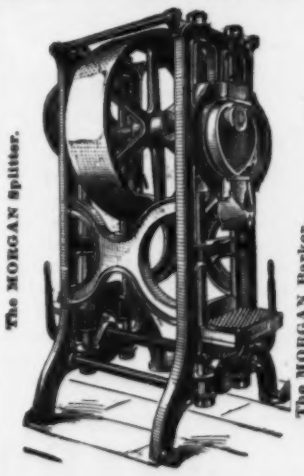
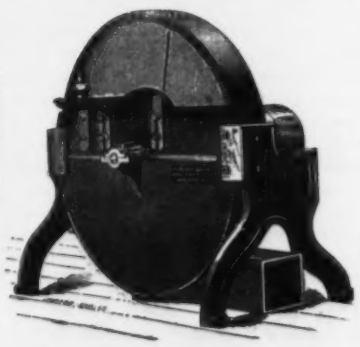


The MORGAN Barker.



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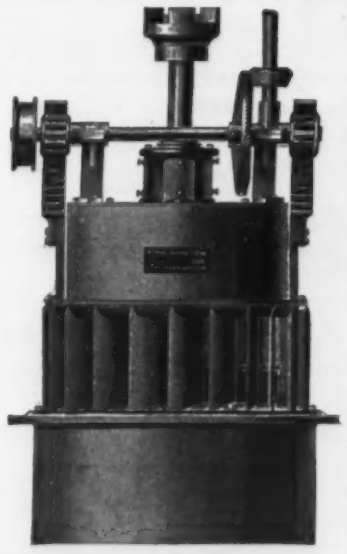

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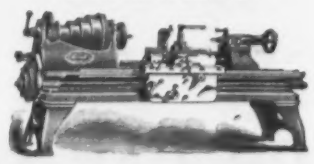
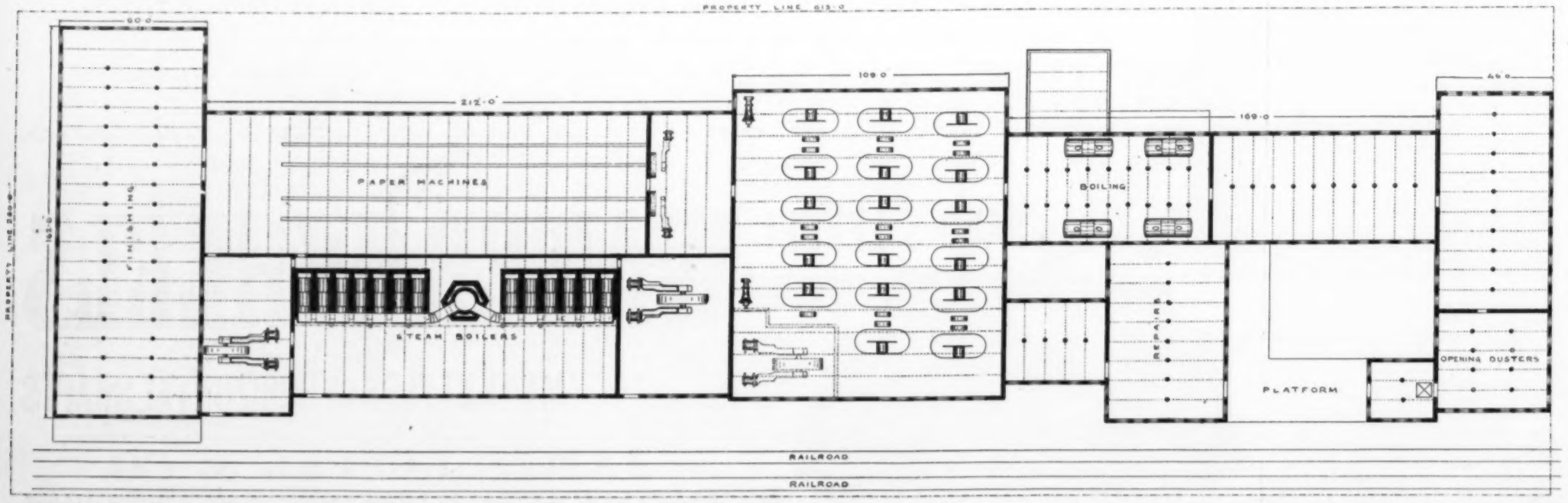


Lathes, Planers, Drills,
SLOTTERS, &c.

## The New Denver Mill.

"Westward the course of Empire"—and of paper making—"takes its way." About a year and a half ago the Denver Paper Mills Company, whose mill is located in a suburb of Denver, Col., started up its big mill with a daily capacity of twenty tons of news paper. To-day the Platte River Paper Mill Company will inaugurate its new mill, located at the same point, and occupying a block of ground 200x613 feet, fronting on Manchester avenue, facing the mill of the Denver Paper Mills Company on the opposite side of the avenue. Col. James H. Platt, to whose energy both of these companies owe their existence, is at the head of each enterprise, as president of both concerns. The story of the formal opening of the mill will be given in next week's issue of THE PAPER TRADE JOURNAL. The mill will be run on book papers and engine sized writings.

The architects to whose skill the owners are indebted for the well devised plans of both mills are Ashley B. Tower & Co., of Holyoke Mass. The accompanying illustration of the ground plan of the mill, which goes into full operation to-day, will enable readers of THE PAPER TRADE JOURNAL to understand the extent of the mill and the manner in which the different departments are laid out.




PLANT OF THE MILL OF THE PLATTE RIVER PAPER COMPANY, DENVER, COL. ASHLEY B. TOWER & CO., ARCHITECTS, HOLYOKE, MASS.

## Pulp From Alder Wood.

Some years ago, while ascertaining the amount of pulp which could be obtained from different kinds of wood, and the quality or character of the fibres they yield, I had occasion to submit a sample log of the alder to both the bisulphite and caustic soda treatments, with results which are embodied in the following: The wood itself was a nut-brown color and comparatively speaking hard and close in the grain. Its fracture was short and ragged and did not reveal the appearance of much fibre. This peculiarity, however, being common to many kinds of hard woods, is not a criterion of their fibre yielding properties, but it is in a marked degree an indication of the fineness, if I might so express it, of the cellulose they yield.

Owing to its density or hardness the alder wood weighs heavy. A cubic foot of it in the air-dry state (usually taken as containing 20 per cent. of water), according to my trial, weighed 32.01 pounds. In the oven-dry state, that is dried at 212° Fahr., it therefore weighed 25.60 pounds. It was chopped into small pieces and then submitted to the following treatment:

First—Bisulphite of Soda Treatment.—200 grams of the chips containing 18.5 per cent. of water were "cooked" for about twelve hours at a gradually increasing temperature till the latter reached about 300° Fahr. maximum, in a solution of bisulphite of soda, of the following composition:

Total $SO_2$ = 3·30 per cent.
Free $SO_2$ = 1·93 per cent.
$SO_2$ combined with base = 1.57 per cent.

When the wood was boiled the resulting pulp possessed a pale brown color, which could not be removed by washing with water. The spent liquor also was very dark colored, and gave off an offensive smell—much stronger than the waste lye from white pine wood. The quantity of pulp obtained, after washing thoroughly with water, and drying at 212° Fahr. till the weight was constant, was 82.4 grams (oven-dry), or 91.55 grams air-dry (10 per cent. water). From these weights the calculated yields were, therefore:

50.35 pts. oven-dry unbleached pulp from 100 pts. oven-dry alder; and

44.94 pts. air-dry unbleached pulp (10 per cent. water) from 100 pts. air-dry alder (20 per cent. water.)

The pulp was soft and fairly pliable, but could not be bleached to a satisfactory color even with a large quantity of bleaching powder. After treatment with 30 per cent. of its weight of dry 85 per cent. bleach, it remained a yellow color, and this could only be destroyed after fully 40 per cent. had been added.

Second—Caustic Soda Treatment.—200 grams of the alder wood chips were next digested in caustic soda lye (5 per cent. $Na_2O$) for five hours under a maximum temperature of 336° Fahr., the total time of digestion being six and three-quarter hours. The proportion of air dry wood to soda ($Na_2O$) used was 100:18.6.

The pulp obtained was very soft, short in length, and pliable and superior in every way as a paper making material to that obtained by digesting in the bisulphite of soda. It was also a deep purple color when wet, and when dried at 212° Fahr. it weighed 68.8 grams, which are equal to 76.44 grams of air-dry pulp containing 10 per cent. water. Again, as in the previous case, we get a yield by calculation of

42.20 pts. oven-dry unbleached pulp from 100 pts. oven-dry wood; and
37.52 pts. air-dry unbleached pulp (10 per cent. water) from 100 pts. air-dry wood (20 per cent. water).

This pulp was now bleached in the usual way with bleaching powder, and in so doing 100 parts of air-dry pulp lost 8.1 per cent. in weight, owing to the oxidizable organic matter passing into solution. This is a large loss, but is due to the large amount of coloring matter remaining in the fibre after the soda treatment. The color of the bleached pulp was good, but on drying it had a tendency to "go back" or assume a yellow shade. The amount of 35 per cent. bleaching powder required to bleach 100 parts of air-dry pulp (reckoned as bleached) was 31 per cent., or nearly 6¼ cwt. of dry bleach to the ton of air-dry product.

The above yields, from the two methods of treatment, confirm again what is commonly known, viz., that by the soda treatment wood yields much less pulp than by the acid treatment. The character of the respective pulps is also different from a paper maker's point of view; the paper made from the one would be different to that made from the other in point of softness and general character.—*James Beveridge, in Paper Trade Review, London.*

## New Patents.

No. 512,347. Wire-Cloth for Paper Machines.—Joseph W. White, Cleveland, Ohio, assignor of one-half to the W. S. Tyler Wire Works Company, same place.

No. 512,377. Apparatus for Drying Printed or Varnished Paper. — Francis X. Hooper, Baltimore, Md.

No. 512,478. Paper Drying Apparatus.—Napoleon Lajoie, Holyoke, Mass., assignor of one-half to William H. Smith, same place.

No. 513,030. Machine for Waxing or Coating Paper.—John W. Bliss and John C. Erwin, Elkhart, Ind.

TRADE MARKS.

No. 24,044. Compressed Vegetable Fibre and Articles Made Therefrom. Including Such Articles as Washers, Sheets, Rolls, Tubes and Tags.—Vulcanized Fibre Company, Wilmington, Del., and New York, N. Y.

VULCANIZED FIBRE.

Essential Feature: The words "Vulcanized Fibre." Used since July, 1873.

## Power from Central Heat.

A friend of M. Berthelot, meeting him recently, asked him whether he was in sober earnest in relating his dream of the world in the year 2000. He said he was never more serious in his life. What was the state of science applied to industry at the time that Franklin called on Voltaire? The world had no industrial plant of any consequence, not even in the form of highways. "See," said M. Berthelot, "what it has now, and see what work has been done in the way of boring with diamond-pointed drills worked by compressed air. The spades of the future are being found in the De Beers mines at the Cape."

It was remarked to M. Berthelot that it was much easier to bore a tunnel through the Saint Gothard Mountain than to sink a shaft to the region of plutonic heat. He admitted this, but he had heard from eminent engineers that it was possible to create machinery that would make a high degree of plutonic heat available as an industrial force. Even were they mistaken, there were energies going to waste everywhere which could be transformed into electricity and into heat. The quantity of sunshine stored up in trees was small compared to what was lost. He did not say how it could be made available for industrial chemistry, but he felt sure that the problem was one that might be solved.—*London, England, Daily Telegraph.*

It is stated that Professor Langley, of the Smithsonian Institute, has perfected an instrument called a bolometer, in which a current of electricity is passed through a very fine wire. The resistance of the wire and consequently the strength of the current passing through it varies with the temperature, and by noting changes of current variations of temperature of the wire amounting to .000001 degree Centigrade (.00000047 Fahr.) are detected. With this instrument some hitherto unknown facts regarding the spectroscope have been discovered.

The formally executed contract of James Purcell, of Hudson, N. Y., to whom Postmaster-General Bissell recently awarded the contract for furnishing stamped envelopes and newspaper wrappers, has been filed at the Post Office Department. All of the sureties are New York men. The principal one is Samuel J. Tilden, Jr., for $200,000, and the others, whose amounts of surety aggregate another $200,000, are W. A. Harder, Jr., Michael Purcell, Henry J. Kearney, Martin L. Hanes, Matthew Kenney, Matthew Connor, Denis H. Kennedy. The contract amounts to $690,000 a year.

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A PAPER MAKER'S INVENTION FOR PAPER MAKERS' USE.
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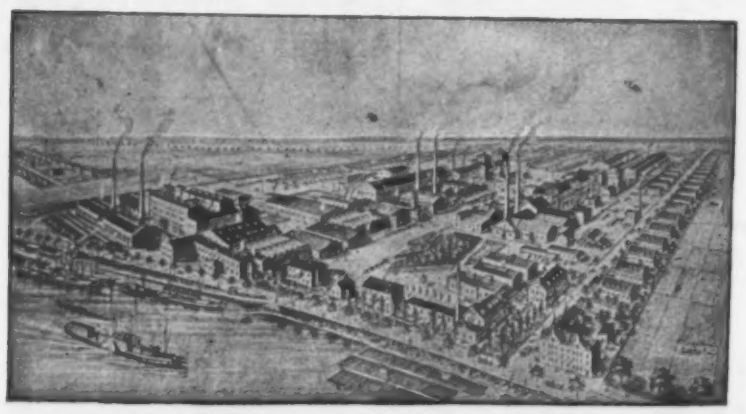
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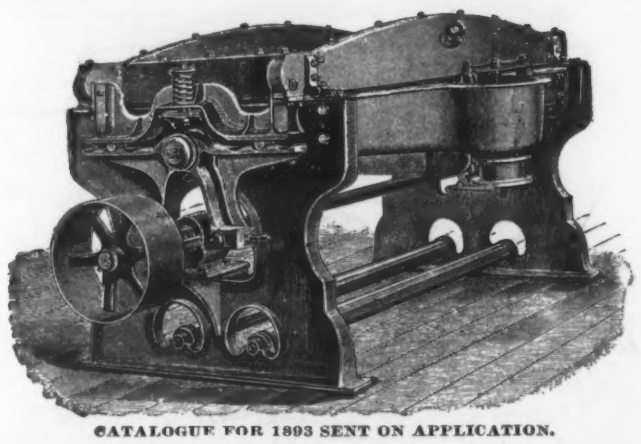

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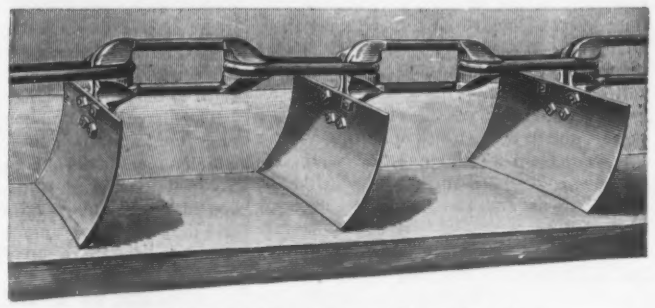

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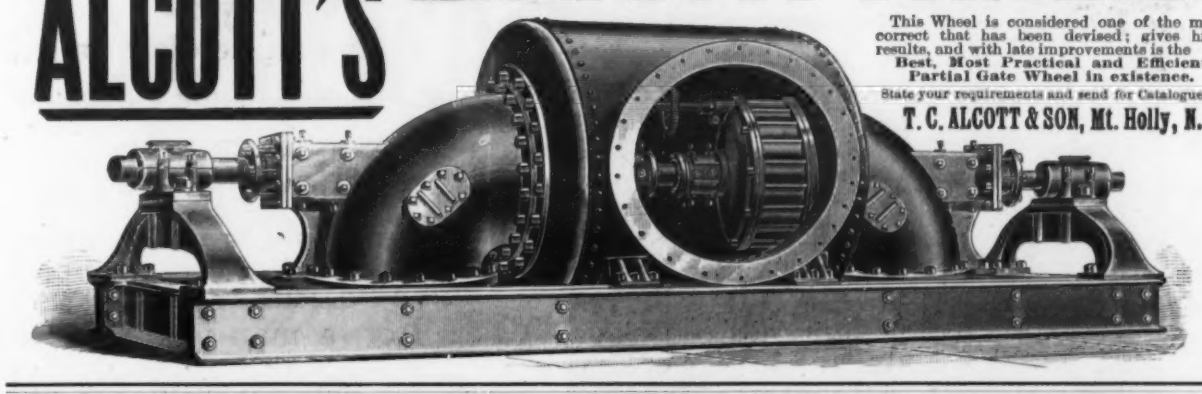

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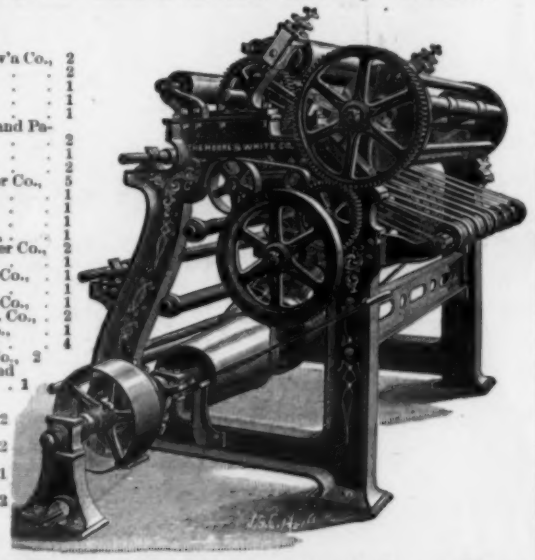

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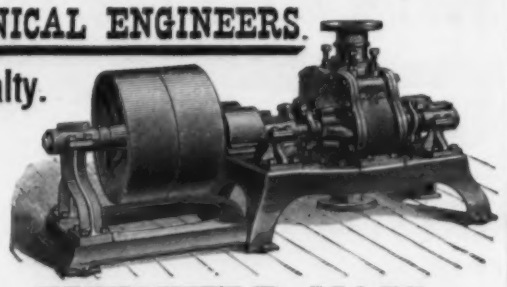

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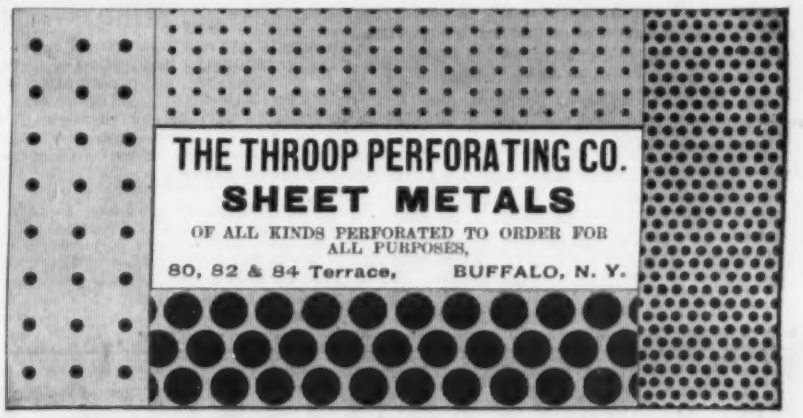

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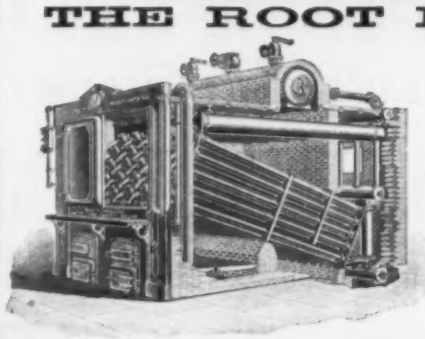

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**ABENDROTH & ROOT MFG. CO., 28 Cliff St., New York.**

### Electrically Driven Tools.

It would be difficult to find in machine shop methods of the past a more rapid and radical change than the one produced by the electric motor. We meet it in every industry, above ground and under ground, driving machinery of every description, sometimes devoting all of its energy to driving one tool requiring large power, and at other times operating a short line shaft from which a gang of small tools is driven. Considering the wide field it now occupies and the diversified duties it performs, it seems wonderful that so few motors are discarded because they have failed to do what was expected of them. The practical trial of the motor has created confidence in its general capability. That this did not exist two years since, even in the minds of progressive manufacturers, is shown by the following incident: The head of one of the largest establishments in the country, when asked why he did not put in an electric traveling crane instead of a square shaft crane, in the changes he was then making in his plant, said: "If, when we made our plans, we had been as convinced as we are now of the reliability of the electric motor, we should certainly have provided an electric crane." The rapidity of the introduction of the motor is shown by the fact that there are now some large plants driven by motors exclusively.

Advocates of the electric motor have always claimed that its most important advantage, as compared with the method of transmitting power by shafts and belts, has been in economy. It has been stated that the efficiency of both dynamo and motor is high, that the loss in conductors is nominal, and, most important, that there is no wasted energy, since when the machine stops all expenditure stops, and the saving is traced direct to the coal pile. To verify these claims we need reliable data, giving power consumed by tools of widely varying character and doing work of all kinds, and compare these results with like ones obtained from tools driven in the usual way. Steps are now being taken in order to obtain this information in the case of electrically driven machines.

As bearing on this question we take the following from an address recently delivered by the president of the Institution of Mechanical Engineers, Prof. A. B. W. Kennedy:

"I have found, from information very kindly given me by several large engineering firms, that the actual cost to them of power, including coal, stores, wages and depreciation, generally lies between 2 and 5 per cent. of their total costs. In any given factory running on the ordinary system there is a large continuous waste of power, due to the running of the whole shafting, no matter how many or how few machines are at work. Under such conditions the waste work in shafts and belts may well be even 25 per cent. of the average useful work, and the distribution of total work may be approximately:

| | Horse power. |
|---|---|
| Average useful work | 100 |
| Wasted in belts and shafting | 25 |
| Wasted in engine friction, the engine being supposed large enough to give 150 horse power at tools as a maximum (at about 10 per cent. of maximum horse power) | 20 |
| Total | 145 |

"Now if all the machines in such a case were driven by separate motors, each having an electrical efficiency of 88 per cent., and these motors worked from a dynamo having an efficiency of 92 per cent. (both of which are high figures for ordinary work at two-thirds output), the figures would stand as follows:

| | Horse power. |
|---|---|
| Average useful work | 100 |
| Wasted in motors and dynamo | 24 |
| Wasted in leads (say 2 per cent.) | 2 |
| Wasted in engine friction (as above) | 20 |
| Total | 146 |

"It will be seen that the two sets of figures are practically the same as to amount of power required. As the electrical efficiencies which I have assumed are not likely to be exceeded, I think it may be said that there is no saving to be obtained in horse-power, and none therefore in any of the items of cost directly dependent on horse-power, in cases where the power wasted in shafting and belts does not exceed 25 per cent. of the whole average useful power."

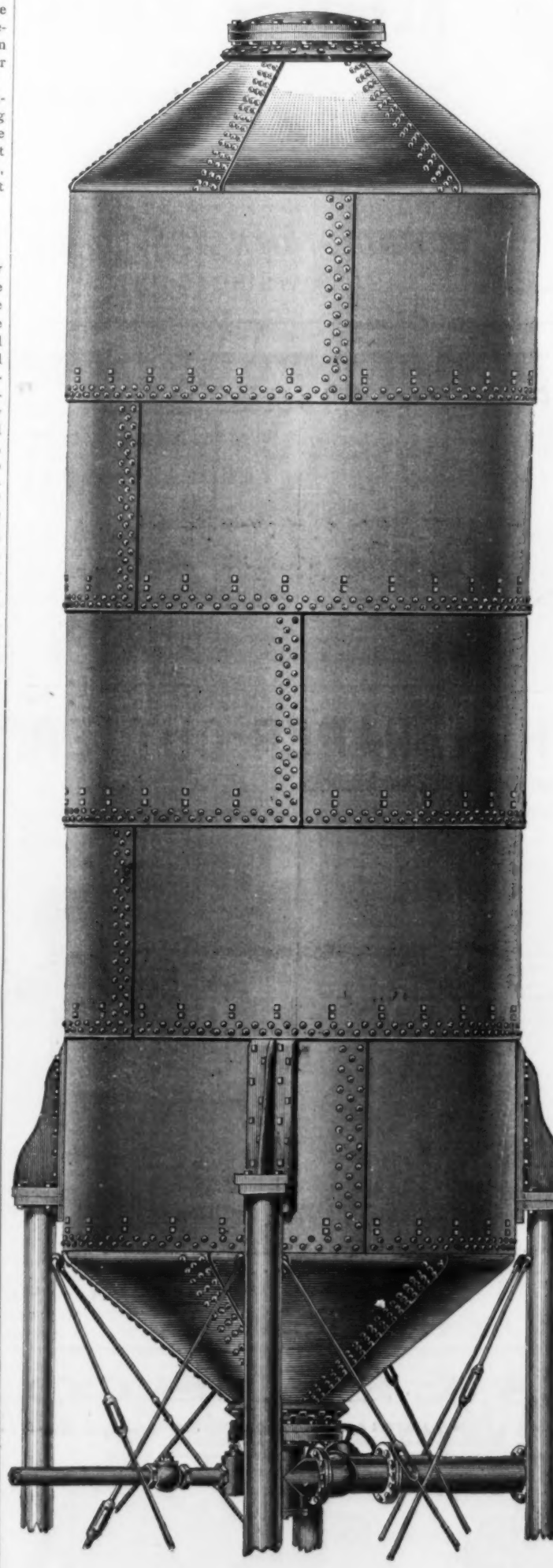
The above might apply to machinery running continuously, but the time during which a machine is idle and from which the greatest item of economy is derived is not considered. This point is most essential, and it is one concerning which there is but scant knowledge.—*Iron Age.*

### Folding or Plaiting Paper.

A new machine for automatically producing folded or plaited paper of the kind commonly used as carpet lining, bottle packing, &c., is constructed to receive one or more webs of paper which, being fed into and through said machine, is delivered plaited, pasted and rolled up ready for shipping. In this machine are embodied several important mechanisms which, as they successively act upon the paper passed therethrough, perform distinct operations, and working in harmony serve together to produce the finished product. These mechanisms, briefly described, consist, first, of cutting knives between which the strips of paper from which the completed product is to be produced are first introduced. These knives serve to trim the ragged or otherwise imperfect edges of said paper and reduce it to a uniform width, thereby adding materially to the appearance of the completed product. The paper from which the product is manufactured may be fed into the machine in any practicable manner, but preferably from rolls revolving on spindles hung in suitable bearings adjacent to the machine proper. Second—A system of forming or crimping dies, designed to take the paper after it passes the trimming knives, and to crimp in into form or shape. Third—Means for conveying the crimped or folded paper through the machine to bring it into contact with certain press rollers and pasting mechanism, leaving the completed product in condition to be formed into rolls of desired size. Fourth—The press rollers mentioned which receive the crimped paper from the forming dies and press it firmly together. Fifth—Pasting mechanism to and over which the folded paper is carried by the conveying mechanism and which deposits on the under side of the folded paper one or more continuous narrow lines of paste. Sixth—Mechanism for placing on the under side of the folded paper one or more strips of paper, these strips being equal in number to the lines of paste previously placed on the under side of the folded paper by means of the pasting mechanism; the conveying mechanism meanwhile carrying the pasted paper forward to receive the retaining strips, which strips, after becoming thoroughly adhered to the crimped paper, serve to prevent the paper from departing from its crimped or plaited form. Seventh—Mechanism for causing the completed product to form into a roll of desired size for convenience in handling and shipping. Eighth—Means for severing the completed roll, thus completing the various operations necessary to produce a roll of desired size of the folded or crimped paper and leaving the roll free to be removed from the machine.

What should prove a most useful industrial development is the application of electricity to the cleansing and preservation of boilers. The method employed is the sending of currents periodically through the shell of the boiler. By this means the scale formed on the shell and tubes is disintegrated and easily removed.

The Kaolin deposits in Lake County, Fla., seem to promise well. Practical tests in Europe and this country indicate, it is said, that the clays equal those of England and France. The mines are being worked in a small way, and the product is sent to New Jersey and Ohio where it is well liked.

# King James' Old Shoes.

It is said he often called for his old shoes, because they were so easy.

No matter how old they be, no shoes will make walking easy

For a man who tries to make sulphite with the old style Digester.

An autopsy would show corns and bunions on the brain of this class of men.

If you want to walk easy, act easy, rest easy and pay your debts easy,

We can help you without plasters or salve, and we are no chiropodist either.

We have one other reason besides making you easy for wanting to sell you.

We are perfectly willing to tell you what this reason is.

FRIEND-STEBBINS MFG. CO.

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# ALDRICH SYSTEM OF DRYING PAPER.

USING LIVE OR EXHAUST STEAM.

86-INCH MACHINE, 35,789 LBS. 24 HOURS.

PAPER IS

Dried Uniformly.
Dried at Low Temperature if desired.
Dried Fast as Formed on Wet End.
Dried with Minimum Steam.
Dried with Practically no Vapor from the Machine.

Applied to Any Machine; Large or Small Dryers; High or Low Speed, with Guaranteed Increased Production.

WRITE FOR ESTIMATES.

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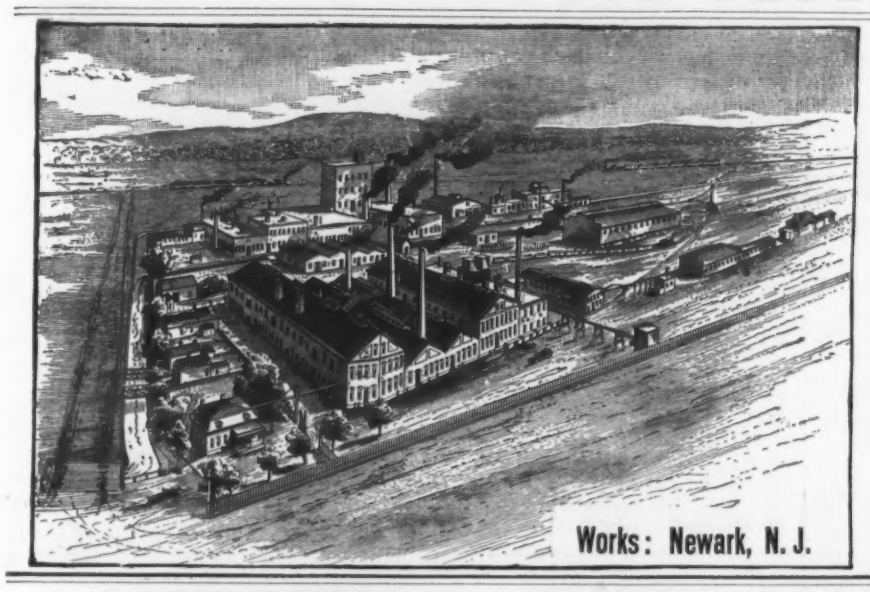
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PROPRIETORS OF THE

## AMERICAN ULTRAMARINE and GLOBE ANILINE WORKS,

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Brands for Paper Makers: R C, ⌗ 4, R S x x, A P R, X

## ULTRAMARINE FOR PAPER MAKERS.

## SUPERIOR QUALITIES.

Aniline Colors of all Shades. Samples Matched.

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IT WILL

AUTOMATICALLY KEEP THE DRYERS FREE FROM AIR AND WATER.
INCREASE THE DRYING CAPACITY OF YOUR MACHINES.
GIVE A UNIFORM TEMPERATURE THROUGHOUT THE CYLINDERS.
CIRCULATE EXHAUST STEAM WITHOUT BACK PRESSURE IN PAPER MACHINES.
CIRCULATE EXHAUST STEAM WITHOUT BACK PRESSURE IN LOFTS AND HEATING CIRCULATIONS.
PROVE ITSELF THE MOST ECONOMICAL SYSTEM OF HEATING BY STEAM.

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*THIS SYSTEM CAN BE APPLIED TO ANY PAPER MACHINE.* *ESTIMATES FURNISHED FOR APPLYING SAME.*

# THE RUSSELL CEMENT LINED DIGESTER.

The **Russell Patent** covers every description of Acid Proof Cement Lining and can be applied to any form of Sulphite Digester in use. This Lining for Sulphite Digesters is now in constant operation in many of the largest mills in the country, **more than thirty Digesters being lined with the RUSSELL CEMENT LINING,** and in every case it has given entire satisfaction and proved itself to be a **Perfect Lining.**

IT IS THOROUGHLY ACID PROOF.

IT IS EASILY APPLIED.

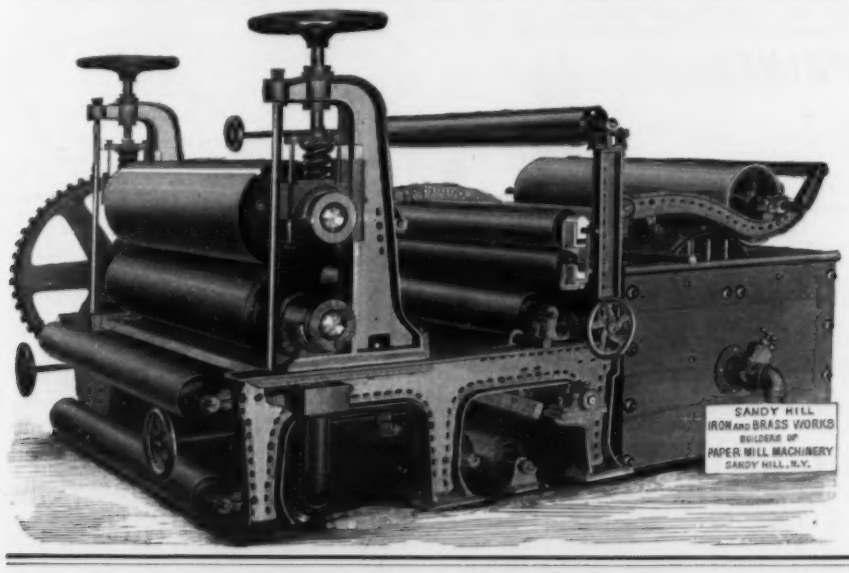
IT IS DURABLE AND IMPROVES RATHER THAN DETERIORATES BY USE.

IT PREVENTS RADIATION OF HEAT, AND THUS EFFECTS GREAT SAVING OF STEAM AND INSURES EVEN COOKING OF ENTIRE CONTENTS.

IN THE "ONE METAL" DIGESTER IT PREVENTS CORROSION AND THE DANGEROUS EXPANSION OF THE BRONZE.

Manufacturers of Sulphite Pulp and those intending to build Sulphite Mills are invited to examine into the merits of the *Russell Cement Lining.* Correspondence solicited. All inquiries cheerfully answered,

## THE AMERICAN SULPHITE PULP CO., 85 WATER STREET, BOSTON, MASS.

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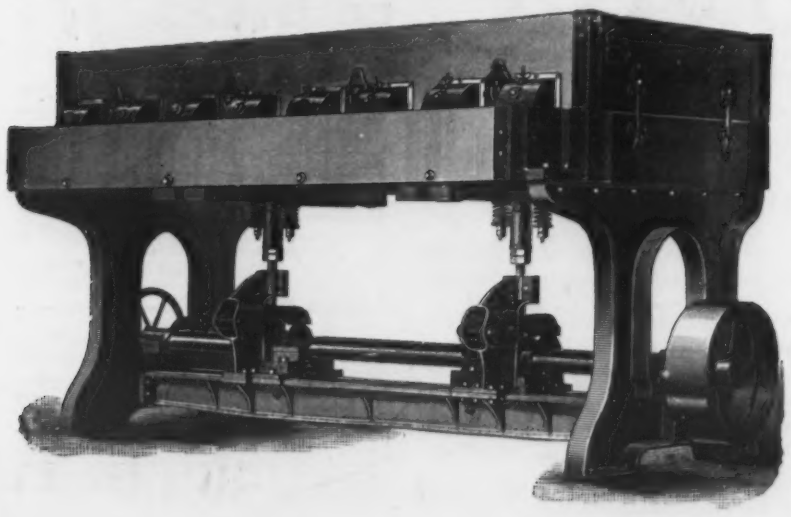

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# NOISELESS PULP SCREEN.

SIMPLE, DURABLE, PERFECT, COMPACT.

COMPLETE, NOISELESS, NO STRINGS, LESS POWER.

**Plates are sure to last longer, and but two-thirds the number being necessary.** **No waste of stock when washing up.**

Occupies a small space; a simple, solid built flooring the only foundation necessary.

Six (6) hours' time only required to put in position ready for work.

Excellent work accomplished with eight (8) plates and 11-1000 screen plate.

In ordering the Screens no particulars are required.

*IT HAS NO EQUAL AS TO SCREENING QUALITIES, CAPACITY AND SAVING OF STOCK.*

WARRANTED. THREE MONTHS' TRIAL GIVEN. ADDRESS

## C. R. MILLIKEN, PORTLAND, ME.

## Steam Boilers and Treatment.

(Continued.)

PURIFICATION OF WATER BY CHEMICALS.

The necessity of purifying feed water led to the introduction of innumerable secret chemical compounds, generally sold under fancy names, for the prevention or removal of scale from steam boilers. They generally contain lime or soda, or a mixture of both; but caustic soda forms the basis of most boiler compositions. The soda is frequently discolored to disguise its presence, and it is sometimes adulterated with and supplemented by useless and even injurious substances, some compositions having been found to contain chloride of barium, which is very injurious to metal. These boiler compositions owe their efficiency entirely to the soda or lime contained, whatever else they may contain. There is no universal specific for the purification of water. Different waters require different treatment, and a chemical examination of the water is a necessary preliminary to remedial measures.

Some waters may be softened by being treated simply with lime, others require treatment with caustic soda and lime water, and others require a mixture of caustic soda and carbonate of soda, and water containing much magnesia requires treatment with a mixture of caustic soda, carbonate of soda and tribasic phosphate of soda. The quantities of these softening materials necessary for efficient purification are calculated in each case from the analytical data of the water to be treated; they cannot be generally defined.

No other materials are required for softening, or removing the impurities held in solution in the water than lime and soda, and all chemical compounds and secret compositions for the prevention of removal of scale from steam boilers should be avoided. The impurities mechanically suspended in the water may be removed by filtration.

The boiler is not the proper place to effect the deposit of mud and scale from feed water. The water should be deprived of its scale forming impurities before it enters the steam boiler. But when scale has formed in a boiler it should be removed by introducing with the feed water a solution of caustic soda, and frequently blowing off a portion of the water. The amount of caustic soda required, when it is pure, is 1 ounce to every 5 gallons of very hard water, or half this quantity if the water be of medium hardness. To get rid of earthy matter, or other impurities mechanically suspended in the water, and sludge, frequent blowing off and cleaning of the boiler is necessary.

PREVENTION OF SCALE BY ZINC.

Zinc has been used with success in some cases for preventing the formation of scale in steam boilers using moderately hard feed water, which yielded a deposit of sulphate of lime. It causes the lime deposit to become pulverent and sedimentary, instead of forming into hard scale. From 1½ to 2 pounds of zinc are provided for every 10 square feet of heating surface of the boiler. Zinc is not equally effective for this purpose in all waters, and it does not prevent the formation of scale in water containing much organic matter.

When zinc is employed in water containing organic matter an incrustation, composed of zinc oxide, organic matter and sediment is liable to form, which may have an injurious effect on the plates of the boiler, and may also cause overheating. Therefore, when zinc is used in feed water of a variable and dirty nature, the boiler should be frequently examined to ascertain the effect of the action of the zinc.

PREVENTION OF SCALE BY VEGETABLE SUBSTANCES.

Numerous vegetable substances have been used in steam boilers for the prevention and removal of scale, the most effective of which are eucalyptus, sumac, oak bark, oak chips and logwood, but they are not suitable for all kinds of water. They contain soluble extractive coloring matter, and more or less tannic acid. The soluble constituents are dissolved by the water, and basic tannate of lime is formed, which separates as a loose deposit and does not form scale.

Sugar has been employed with success in some waters for the removal of scale from steam boilers.

WEIGHT OF IMPURITIES IN WATER.

The weight of impurities held in solution and in mechanical suspension in moderately good water varies considerably, but it is frequently from 20 to 50 grains per gallon. A stationary steam boiler, evaporating 5,000 pounds of water per hour, containing 28 grains of solid matter per gallon, would collect a deposit of 5,000 pounds ÷ 10 pounds = 500 gallons of water evaporated × 28 grains = 14,000 grains ÷ 7,000 grains per pound = 2 pounds per hour, part of which would form sludge and the remainder would be converted into hard scale. This boiler, in working a week of 54 hours, would accumulate 2 pounds × 54 hours = 108 pounds, or nearly 1 hundredweight of solid matter.

PREVENTION OF SCALE BY MINERAL OIL.

Mineral oil rapidly dissolves scale and is effective in preventing the formation of scale in steam boilers using some kinds of feed water. One pint of kerosene oil put into the boiler daily is sufficient to keep a boiler of nominal horse power free from scale. When kerosene oil is used for this purpose it should be of best refined quality, having a vaporizing point very much higher than the temperature of the steam in the boiler. The sediment and sludge should be removed by daily blowing off a portion of the water from the boiler, which should be frequently cleaned by washing out with water from a hose.

INJURIOUS EFFECTS OF INCRUSTATION.

Boiler scale is a very bad conductor of heat, and resists the passage of air through it, causing extravagant consumption of fuel and loss of evaporative efficiency. Incrustation frequently causes overheating, burnt furnace plates and bulged furnace crowns. It increases unequal expansion of the structure, which has a weakening effect, and frequently causes leaky seams, and sometimes causes cracks in the plates near the rivet holes. It causes excessive wear and tear, which may occasion numerous repairs, and it necessitates frequent cleaning of the boiler. It also is a frequent contributory cause of boiler explosions.

LOSS OF FUEL CAUSED BY BOILER SCALE.

The loss of fuel caused by a coating of scale on the heating surfaces of a steam boiler varies considerably because it depends upon the composition of the scale, and some kinds of scales are much more heat resisting than others. In some cases the loss has been found to be 15 per cent. for every sixteenth of an inch of thickness of the scale; in other cases it has been very much less than this.

The loss of fuel caused by a coating of scale in a steam boiler may, in a general way, be averaged as follows:

Scale one-sixty-fourth inch thick causes a loss of 2 per cent. of fuel.

Scale one-thirty-second inch thick causes a loss of 4 per cent. of fuel.

Scale one-sixteenth inch thick causes a loss of 9 per cent. of fuel.

Scale one-eighth inch thick causes a loss of 18 per cent. of fuel.

Scale three-sixteenth inch thick causes a loss of 27 per cent. of fuel.

Scale one-fourth inch thick causes a loss of 38 per cent. of fuel.

Scale three-eighths inch thick causes a loss of 48 per cent. of fuel.

Scale one-half inch thick causes a loss of 60 per cent. of fuel.

Scale five-eighths inch thick causes a loss of 74 per cent. of fuel.

Scale three-fourths inch thick causes a loss of 90 per cent. of fuel.

The waste of fuel and loss of evaporative efficiency caused by thick scale is so great that it is always expedient to incur the expense of purifying feed water which contains much scale forming matter.

The advantage obtained by freedom from scale in a steam boiler is liable to be counterbalanced by corrosion. The effect of corrosion is more insidious and injurious than scale, and it is consequently advantageous to permit the formation of scale of the thickness of an egg shell as a preventive against corrosion when the feed water is of a corrosive nature.

CORROSION AND PITTING IN STEAM BOILERS.

Gases absorbed by water, such as sulphuretted hydrogen, oxygen and carbonic acid are very active in the corrosion of boiler plates.

Even the purest water when containing air will cause corrosion. All water contains more or less air, which is liberated when the water reaches the boiling point, and it escapes into the steam space of the boiler. When the liberated air does not find a free passage from the boiler it collects in bubbles and causes irregular bead-like corrosion at the parts where it collects.

When much air is present in a boiler it is not distributed in the steam space, but being heavier than steam it remains below the steam and forms a layer between the water and the steam, and rapidly corrodes the plates in the vicinity of the water line. The admission of air to a boiler is a frequent cause of corrosion, and care should be taken to prevent the suction pipes of feed pumps drawing air.

The slimy deposit of black or blackish red color found in steam boilers contains acids which rapidly corrode the plates. It is generally formed from grease carried with the feed water from the hot well of the engine into the boiler. Many lubricants decompose at 220° Fahr., and numerous cylinder oils at 330° Fahr., and form compounds which combine with the mineral substances precipitated in the boiler and form a soft, greasy deposit, containing from 60 to 85 per cent. of such mineral substances as iron oxide, lime, silica, magnesia, iron and zinc, and from 15 to 40 per cent. of oil.

Part of this greasy deposit rises to the top of the boiler in the form of froth or scum, and the remainder settles at the bottom of the boiler in the form of sludge. The evil effect of this deposit does not stop at the boiler. The deposit is frequently carried into the cylinder of the engine, where it forms a black paste, which becomes baked at the ends of the cylinder and on the piston, and it also frequently causes wear and scoring of the cylinder surfaces. In water containing organic matter free acids may form and cause corrosion.

Pitting proceeds from the same cause as corrosion. It is the result of the chemical action causing the corrosion becoming intensified and concentrated at a particular part, due principally to the presence of a coating of rust and variations of temperature. Pitting can generally be remedied by scraping the affected parts and cleaning them with a solution of soda and coating the surface with Portland cement.

PREVENTION OF CORROSION IN STEAM BOILERS.

Zinc suspended in the water is an effective protector from corrosion in boilers. The action of zinc in preventing corrosion is due to the fact that when two metals of a dissimilar character are immersed in a liquid capable of chemically acting on both of them, and are connected or in metallic contact, the metal which is most affected or acted on by the exciting medium becomes the positive or corroded element, and the other becomes the negative or inactive element, and thus escapes corrosion as long as the metals are in contact. Zinc being the most readily acted on, it becomes the corroded element and concentrates and absorbs corrosion, which would attack the metal of the boiler if the zinc were not present and in metallic contact.

A very small quantity of zinc suspended in the water, or about 2 pounds weight of zinc per ton weight of the boiler will prevent corrosion. A good proportion is 2½ ounces or 16 pounds of zinc per square foot heating surface of the boiler. The zinc is applied in slabs or plates suspended in the water, or in sleeves placed on round stay bolts, or in disks supported by studs.

When the water is good or moderately pure an enamel-like film or coating efficiently protective against corrosion, may be given to the interior surfaces of a boiler when clean by using zinc plates suspended in the water, and adding common soda continuously to the feed water.

Another method of applying zinc is to place a ball of zinc through which a bar of pure copper is passed in a cage suspended in the water, and to connect the ball by wire to those parts of the boiler which suffer most from corrosion. But the current of electricity that is developed by the zinc and the copper is rather feeble, and it is necessary in some cases to augment it by the employment of an auxiliary galvanic battery placed outside the boiler.

A zinc plug should be inserted in the ends of the washout plugs of locomotive boilers, to prevent corrosion of the screw threads in the plates, and the ends of water gauges and test corks should have zinc washers riveted on them for the same purpose.

When feed water contains acids which cause corrosion their effect may generally be neutralized by treatment with alkalies, for which purpose soda ash is frequently employed.

Acids have little or no effect upon petroleum, and refined mineral oil has been found effective in preventing corrosion in steam boilers using acid feed water. Only the best refined mineral oil should be used for this purpose, and it should have a vaporizing point of at least 600° Fahr. The interior of the boiler becomes coated with a thin film of the oil, which protects it against corrosion. The quantity required depends upon the nature of the feed water, but in some cases a pint of this oil put into a nominal 40 horse power steam boiler has been sufficient to maintain it free from both corrosion and scale. A portion of the water should be blown off daily from the boiler, which should be frequently cleaned and examined to ascertain the effect of the oil.—*Manufacturers' Gazette.*

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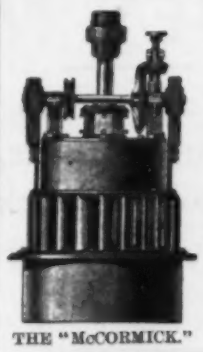
Emigration for the first three months of the year is about 44 per cent. less than that of the corresponding period in 1893. In view of what is happening in various parts of the Union the decrease will not make any one feel very despondent.

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VERTICAL OR HORIZONTAL.

The McCORMICK Turbine gives more power per diameter with a higher percentage of useful effect from the water used than any other water wheel heretofore made. All sizes, both right and left hand, tested in the Holyoke testing flume.

The SUCCESS Turbine, long and favorably known in the paper trade as a first-class water wheel, possesses valuable features found in no other turbine, and gives a high percentage of useful effect from the water used.

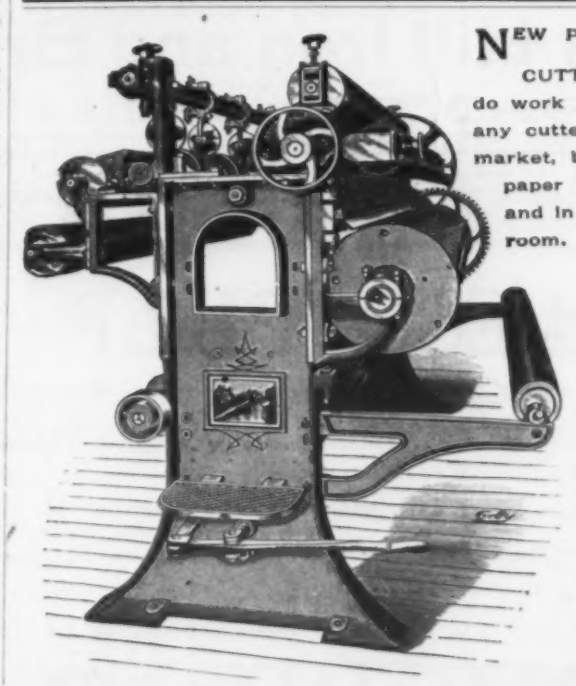
THE McCORMICK and SUCCESS TURBINES are especially adapted for driving Paper and Pulp Mills and are extensively used by the largest manufacturers in the United States and Canada. Parties using wheels which are unsatisfactory and those contemplating the improvement of powers will find it to their interest to confer with me, as I am willing to guarantee results where others have failed, no matter what make of turbines has been tried.

State requirements and send for catalogue.

Heavy Power Transmitting Machinery a Specialty.

**S. MORGAN SMITH, York, Pa.**

THE "SUCCESS."



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FOURDRINIER AND CYLINDER MACHINES.

Very Substantial and Convenient Designs, Embodying all Late Desirable Improvements.

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THE GLEESON WIRE CLOTH MFG. CO., manufacturers of Fourdrinier Wires; Cylinders and Dandy Rolls made and repaired; Cylinders covered at mill; Lettering and Watermarking promptly done. Harrison, N. J.

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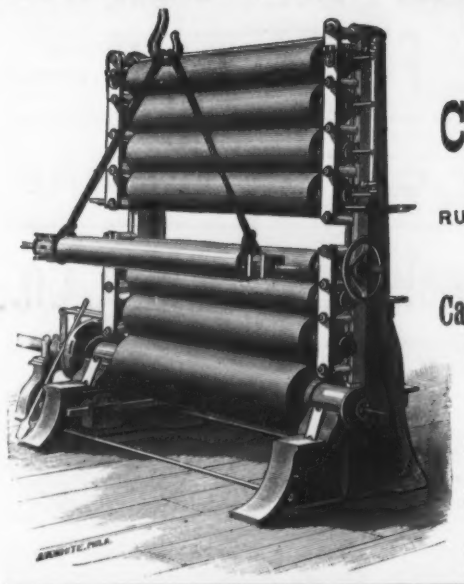

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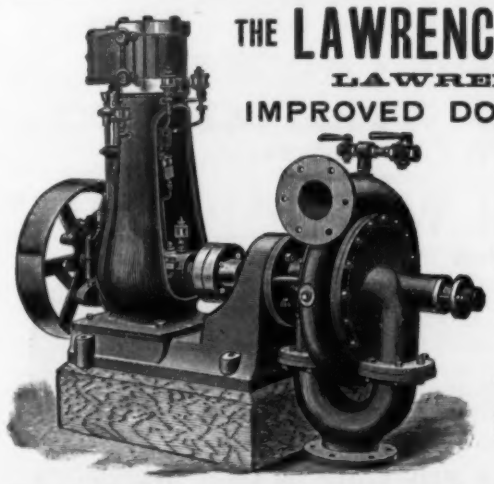

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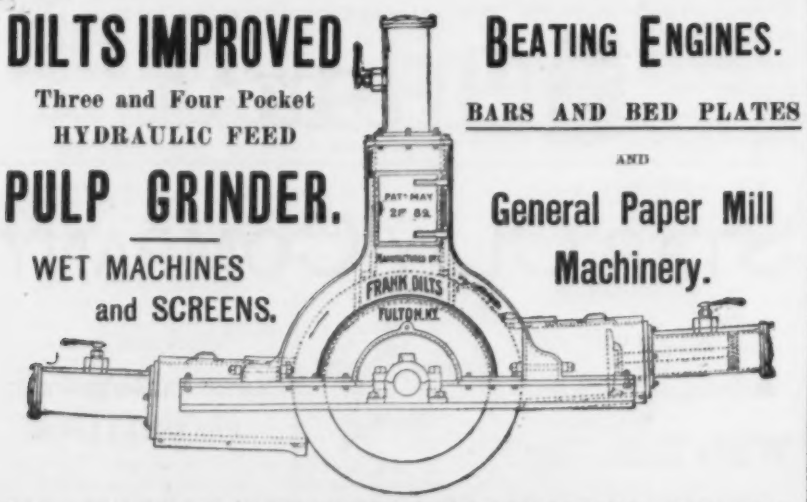


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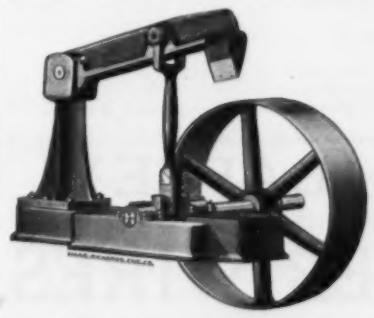

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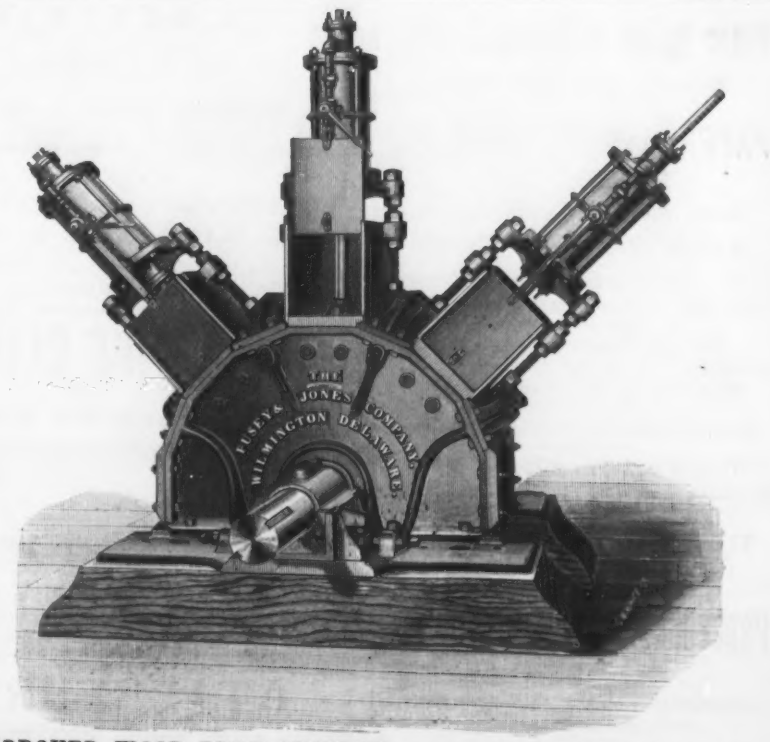


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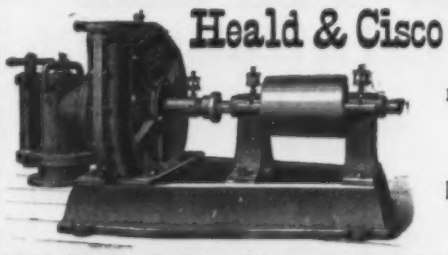

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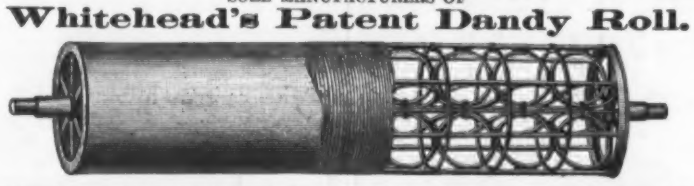

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